Transcatheter arterial embolization is an acceptable alternative to pretransplant native nephrectomy for patients with:

A: Goodpasture syndrome.

B: severe proteinuria.

C: VUR.

D: symptomatic polycystic kidneys.

E: a history of pyelonephritis.

B: "severe proteinuria." is correct.

Current indications for pretransplant nephrectomy may include hypertension not controlled by dialysis and medication, persistent renal infection, renal calculi, or renal obstruction. Additional indications include severe proteinuria or polycystic kidneys symptomatic from infection, severe bleeding, or massive enlargement. Of these indications for pretransplant nephrectomy, only severe proteinuria can safely and reliably be managed by pretransplant transcatheter embolization and infarction.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, pp 1300-1301.

Question 2 of 150

A 45-year-old hypertensive man with a family history of renal failure is noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complains of marked dysuria. He is admitted with a presumptive diagnosis of pyelonephritis. Urine culture has been sent. Initial antibiotic should be:

A: gentamicin.

B: ampicillin.

C: cephalexin.

D: ciprofloxacin.

E: nitrofurantoin.

D: "ciprofloxacin." is correct.

Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology including renal cysts, calculi, infection, hemorrhage, and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, levofloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3325.

Question 3 of 150

A 48-year-old man undergoes radical cystectomy with a Studer-type orthotopic urinary diversion. Three months postoperatively, he complains of frequency and day and nighttime incontinence. Videourodynamics reveal capacity of 300 ml, detrusor pressure at capacity is 10 cm H_2O, Valsalva LPP is 130 cm H_2O, and PVR is 75 ml. The next step is:

A: observation.

B: alpha-blocker therapy.

C: CIC every two to three hours.

D: placement of an artificial urinary sphincter.

E: augmentation of his orthotopic diversion.

A: "observation." is correct.

The length of time postoperatively after orthotopic diversion influences continence results. The reservoir capacity can and does increase over the first six to twelve months and even longer in patients with anti-refluxing afferent limbs (e.g. Studer type). CIC will decrease incontinence but frequent CIC will prevent the reservoir from increasing its capacity over time. Alpha-blocker therapy may relax the proximal urethra and exacerbate incontinence.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, pp 2620-2621.

Question 4 of 150

In central (pituitary) diabetes insipidus, the nephron segment that contains the most dilute fluid is the:

A: proximal convoluted tubule.

B: descending limb of Henle's loop.

C: ascending limb of Henle's loop.

D: distal convoluted tubule.

E: collecting duct.

E: "collecting duct." is correct.

Central diabetes insipidus involves a defect in the production or release of ADH from the hypothalamo-neurohypophyseal system. ADH affects the permeability of the distal tubule and collecting duct to water from the filtrate. With diminished ADH production, the distal tubule and collecting duct reabsorb less water from the filtrate yielding concentrated blood and dilute urine. The most dilute urine will be in the collecting duct.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1141-1146.

Question 5 of 150
During PCNL, a collecting system perforation is noted. The first sign of significant extravasation of irrigant into the peritoneal cavity is:

A: hypotension.

B: hypercarbia.

C: abdominal distension.

D: narrowed pulse pressures.

E: increasing ventilatory pressures

D: "narrowed pulse pressures." was the correct answer.

Narrowed pulse pressures (rise in diastolic pressure) precede difficulty with ventilation, hypercarbia and a rise in central venous pressure. Extravasated irrigant increases abdominal pressure leading to decreased venous return and thus narrowing the pulse pressure. Distension is not appreciated in the prone position until later in the course. Hypotension would signal the possibility of significant hemorrhage. Increasing ventilatory pressures is a later sign when there is significant fluid in the peritoneal cavity and when the patient is returned to the supine position.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1500.

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Question 6 of 150
A 77-year-old man has a retracted stoma and clear fluid leaking from his midline incision three weeks after radical cystectomy and ileal conduit diversion. Three images from a CT loopogram are shown. The next step is percutaneous pelvic drainage and:

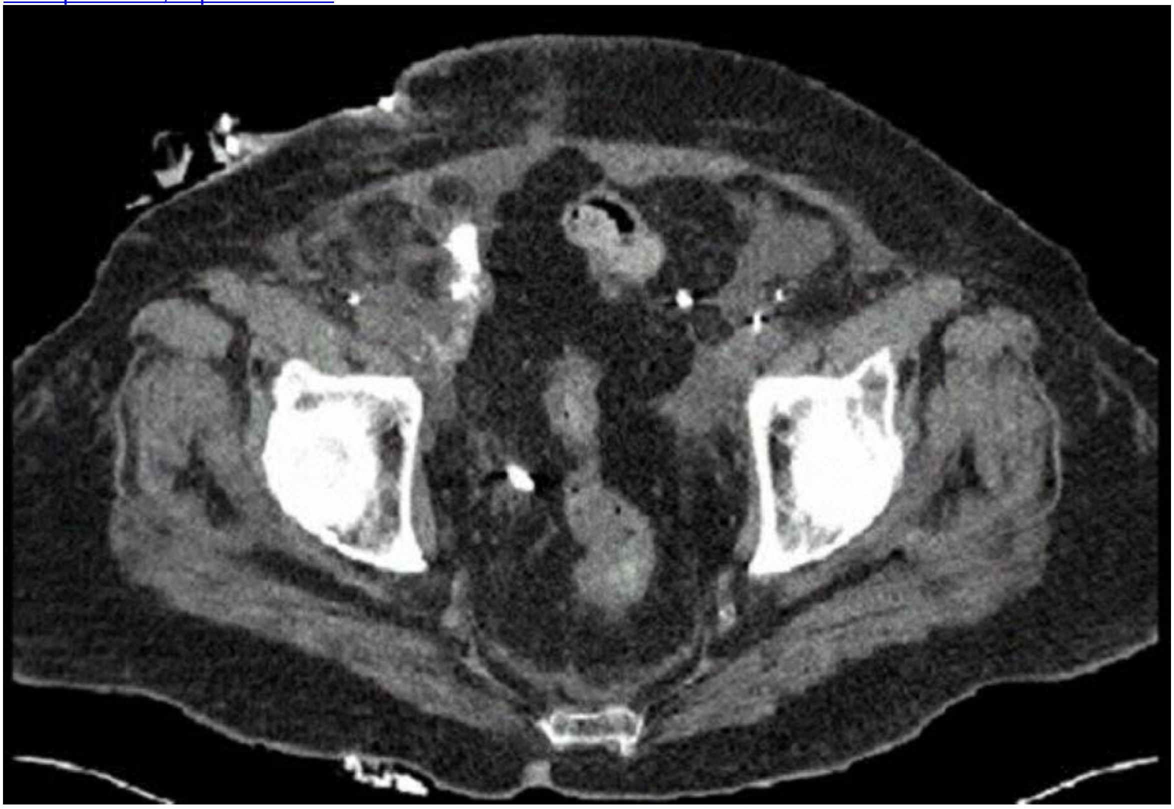
A: stomal catheter.

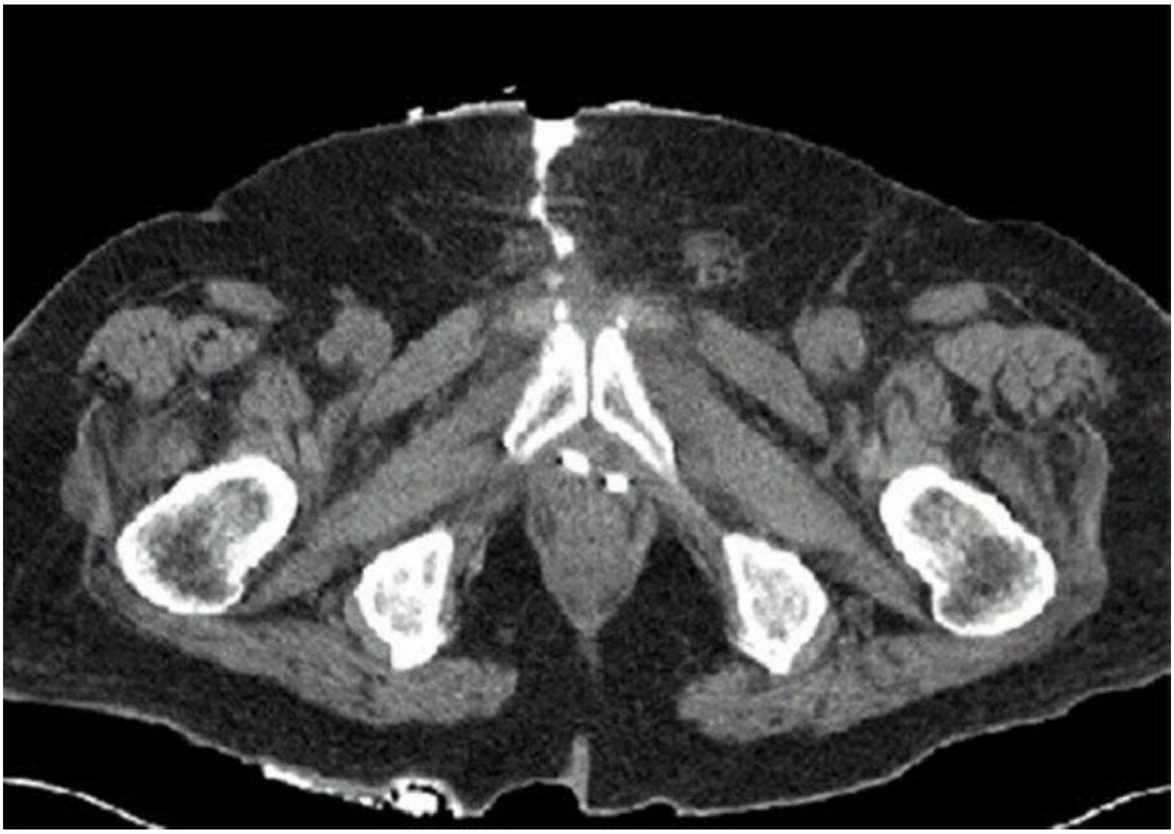
B: loop endoscopy, fulguration.

C: fascial repair.

D: stomal revision.

E: exploration, repair of leak.





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Un-Answered Questions

Next un-answered

>> I

A: "stomal catheter." is correct.

A delayed urinary leak following urinary reconstruction should lead the clinician to suspect tissue ischemia/necrosis. In these cases, the leak is unlikely to resolve with observation alone. Fascial repair is unnecessary unless signs of dehiscence are present. Maximal drainage of the reconstructed segment is essential in order to minimize the output of the leak. In this case, the CT image demonstrates leakage from the proximal end of the conduit. Given the presence of stomal retraction, catheter drainage of the conduit may decompress the leak. Given the pooling of contrast in the pelvis, a percutaneous drain is also advisable in order to control the fistula, minimize the risk of local abscess, and to protect the fascia from further dehiscence. While this patient may ultimately require stomal revision, it would not be advisable until determining if the leak will heal with conservative therapy. Early exploration and repair is difficult given the intense local inflammatory reaction, and it is likely to result in a high risk of treatment failure given the condition of the local tissues.

Gitlin J, Taneja SS: Complications of Conduit Urinary Diversion, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, p 449.

Question 7 of 150
A 27-year-old man states that since a radical orchiectomy for stage A seminoma six months previously, the frequency and quality of his erections have been poor. He received XRT to periaortic nodes. The last treatment was two months after the orchiectomy. His chest x-ray, serum markers, glucose, and testosterone are normal. The next step is:

A: intracavernosal injection therapy.

B: sexual dysfunction counseling.

C: intraurethral alprostadil.

D: nocturnal penile tumescence studies.

E: testosterone patch.

B: "sexual dysfunction counseling." is correct.

The patient should be told that during the early months after surgery, depression and loss of vigor are common along with an impaired sense of body image and mood disturbances. Patients cured of testis cancer rarely have persistent emotional disturbances. Sexual drive does not appear to be permanently disrupted by curative therapy. Treatments such as testosterone should be avoided. With time and reassurance, he should recover his normal libido and potency. Concomitant use of PDE5 inhibitors may also be helpful to reestablish confidence. Reassessment of such patients one year after treatment has shown that depression and mood disturbances have usually cleared.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 21, p 742.

Question 8 of 150
Sepsis after PCNL best correlates with:

A: preoperative urine culture.

B: stone culture.

C: length of procedure.

D: blood loss.

E: collecting system violation.

B: "stone culture." is correct.

Two recent studies showed that the results of pre-operative voided urine cultures failed to correlate with either stone cultures or renal pelvic urine cultures obtained at the time of ureteroscopy or PCNL. Furthermore, the occurrence of SIRS (systemic inflammatory response syndrome) correlated with positive stone or renal pelvic urine cultures, but not with voided urine cultures. Another recent prospective study found that the occurrence of post-operative SIRS was predicted by stone culture, but failed to correlate with pre-operative urine culture, length of procedure, stone free rate or the use of supra- versus sub-costal access. Although typically the results of a stone culture are not available until at least 48 hours post-operatively, these findings can prompt a change in the choice of antimicrobial coverage in the septic post-PCNL patient.

Mariappan P, Loong CW: Midstream urine culture and sensitivity test is a poor predictor of infected urine proximal to the obstructing ureteral stone or infected stones: A prospective clinical study. J UROL 2004;171:2142-2145.

Mariappan P, Smith G, Bariol SV, et al: Stone and pelvic urine culture and sensitivity are better than bladder urine as predictors of urosepsis following percutaneous nephrolithotomy: A prospective clinical study. J UROL 2005;173:1610-1614.

Margel D, Ehrlich Y, Brown N, et al: Clinical implication of routine stone culture in percutaneous nephrolithotomy--a prospective study. UROL 2005;67:26-29.

Question 9 of 150
A 56-year-old man undergoes partial penectomy for pT2 squamous cell carcinoma. Examination reveals no inguinal adenopathy. The primary tumor characteristic most predictive of pathologic lymph node involvement is:

A: HPV status.

B: tumor thickness > 5 mm.

C: lymphovascular invasion.

D: corpora spongiosum involvement.

E: corpora cavernosal involvement.

C: "lymphovascular invasion." is correct.

In a multi-institutional review, eight different factors including superficial growth pattern, grade, tumor thickness, involvement of corporal tissue and the urethra increased the likelihood of pathologic lymph node involvement. However, the factor most predictive of lymph node involvement was the presence of lymphatic and/or vascular invasion seen in the primary tumor. Although the presence of human papilloma virus infection in patients with penile cancer is common, there is no correlation to lymph node metastases risk.

Novara G, Galfano A, De Marco V, et al: Prognostic factors in squamous cell carcinoma of the penis. NATURE CLIN PRACTICE UROL 2007;4:140-144.

Question 10 of 150
Impaired ammonia production by the kidney will most likely result in:

A: calcium oxalate renal lithiasis.

B: decreased urine titratable acidity.

C: impaired urea excretion.

D: systemic alkalosis.

E: metastatic calcification.

B: "decreased urine titratable acidity." was the correct answer.

Ammonia production allows the kidney to rid itself of acid without lowering the pH (titratable acidity). The term titratable acidity refers to the quantity of sodium bicarbonate required to titrate urine back to a pH of 7.40, which is similar to that of blood. Other buffers, such as uric acid and creatinine, contribute to the titratable acidity but only to a minor extent. Hydrogen ion (H+) is also secreted through the production of ammonium ion. Ammonia (NH4+) is produced from glutamine, primarily by proximal tubular cells. Ammonium excretion can increase significantly during systemic acidosis, which is the key mechanism for secreting excess H+ because at very low urinary pH, titratable acid cannot increase much unless other ions such as ketoanions are being produced. Lack of ammonia production can result in a systemic acidosis which may be followed by demineralization of bones and uric acid lithiasis.

Shoskes DA, McMahon AW: Renal Physiology and Pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1152.

Question 11 of 150
The condition associated with uric acid stone formation is:

A: insulin resistance.

B: thiazide therapy.

C: hyperthyroidism.

D: immobilization.

E: proximal RTA.

A: "insulin resistance." is correct.

Low urine pH is the most important pathogenetic factor in uric acid stone formation. The mechanism responsible for low urine pH in idiopathic uric acid stone formers is thought to be insulin resistance. Evidence in support of this link includes the findings that over 50% of uric acid stone formers are glucose intolerant, a disproportionate number of diabetics have uric acid stones, and there is a strong inverse correlation between urine pH and insulin resistance. In the kidney, insulin stimulates ammonia genesis in proximal renal tubule cells; in insulin resistant states, defective ammonia production and/or excretion results in unbuffered hydrogen ions in the urine and an acid urine. Hyperthyroidism is associated with hypercalciuria and calcium stones. Likewise, Dent's disease, also known as X-linked recessive nephrolithiasis, is a hereditary condition characterized by hypercalciuria, nephrocalcinosis, kidney stones, proteinuria, progressive renal failure, and in some cases, rickets. Crohn's disease is associated with calcium oxalate stones as a result of low urine volume due to dehydration, low urine pH, and hypocitraturia due to metabolic acidosis and hyperoxaluria due to overabsorption of intestinal oxalate. Proximal RTA is not associated with kidney stones. Though thiazide diuretics may increase serum uric acid levels slightly, this does not pose a clinical risk to the patient and is not associated with increased urinary uric acid levels.

Maalouf NM, Cameron MA, Moe OW, Sakhaee K: Novel insights into the pathogenesis of uric acid nephrolithiasis. CURR OPIN NEPHR HYPERTEN 2004;13:181-189.

Langford HG, Blaufox MD, Borhani NO, et al: Is thiazide-produced uric acid elevation harmful? Analysis of data from the Hypertension Detection and Follow-up Program. ARCH INTERN MED 1987;147:645-649.

Taylor EN, Mount DB, Forman JP, Curhan GC: Association of prevalent hypertension with 24-hour urinary excretion of calcium, citrate, and other factors. AM J KID DIS 2006;47:780-789.

Question 12 of 150
During radical cystectomy, the cephalad (proximal) limit of an extended pelvic lymph node dissection is the:

A: aortic bifurcation.

B: inferior mesenteric artery.

C: bifurcation of the common iliac artery.

D: the genitofemoral nerve.

E: the circumflex iliac vein.

B: "inferior mesenteric artery." was the correct answer.

Extended pelvic lymph node dissection has been associated with an improved disease specific survival in patients with muscle invasive bladder cancer. Increasing the number of lymph nodes removed at lymph node dissection is associated with improved survival in the setting of both lymph node negative and positive disease. The cephalad limit of the extended pelvic lymph node dissection for bladder cancer is the inferior mesenteric artery. The bifurcation of the common iliac artery is the cephalad limit of dissection of the standard pelvic lymphadenectomy. The circumflex iliac vein and genitofemoral nerve are the caudal and lateral limits of dissection.

Bochner BH, Carver BS, Coleman JA, Eastham JA: Role of lymphadenectomy in genitourinary cancer. AUA UPDATE SERIES 2009; vol 28, lesson 27, pp 251-252.

Question 13 of 150
A 38-year-old woman develops incontinence ten days after an abdominal hysterectomy and anterior colporrhaphy for a large cystocele. She complains of leakage that is constant, but increases with an increase in abdominal pressure. The most likely diagnosis is:

A: overflow incontinence.

B: transient detrusor overactivity.

C: stress incontinence.

D: ureterovaginal fistula.

E: vesicovaginal fistula.

E: "vesicovaginal fistula." is correct.

All of these causes are possible. A vesicovaginal fistula is the most likely diagnosis of her incontinence in the setting of recent hysterectomy, and should be investigated even if stress incontinence is present. Both the timing and the nature of her leakage suggest vesicovaginal fistula is responsible. Ureterovaginal fistula may have a similar presentation, but is much less common and should be ruled out prior to repair of a vesicovaginal fistula. Patients with overflow incontinence rarely leak constantly and would be likely to complain of voiding difficulties.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2323-2324.

Continue

Question 14 of 150
A 55-year-old diabetic woman has new onset pneumaturia. The next step is:

A: urinalysis and culture.

B: abdominal and pelvic CT scan.

C: cystogram.

D: barium enema.

E: cystoscopy.

A: "urinalysis and culture." is correct.

Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60% of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Common causes of fistula formation include diverticulitis, regional enteritis and sigmoid cancer.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2253.

Question 15 of 150
A 65-year-old man develops lung and liver metastases four months after undergoing a left radical nephrectomy for clear cell carcinoma. Hemoglobin is 8.1 g/dl, Creatinine is 1.3 mg/dl, and his calcium is 13 mg/dl. The therapy most likely to improve survival is:

A: interferon-alpha.

B: interleukin 2.

C: temsirolimus.

D: sunitinib.

E: bevacizumab.

C: "temsirolimus." is correct.

Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase - this is a component of intracellular signaling pathways involved in growth/proliferation of cells. This medication suppresses angiogenesis and is given as a weekly IV infusion. Patients, such as this patient with three or more of the following "poor risk" features (serum LDH > 1.5 times upper limit of normal, Hgb below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of renal cell carcinoma to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs), were found to benefit from temsirolimus. Patients who received temsirolimus were 27% more likely to survive than those who received interferon-alpha. The other listed agents have not demonstrated a survival advantage in this group of higher risk patients.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alfa, or both for advanced renal cell carcinoma. NEJM 2007;356:2271-2281.

Question 16 of 150
The most important factor for successful vesicovaginal fistula repair using an omental interposition graft is:

A: the length of the omentum.

B: adequate mobilization of the gastroepiploic vascular pedicle.

C: adequate mobilization of the omentum by splenectomy.

D: ligation of the short gastric vessels.

E: vaginal closure using non-absorbable suture material

B: "adequate mobilization of the gastroepiploic vascular pedicle." is correct.

In complicated vesicovaginal fistulae, a supravesical approach is appropriate. Since the surrounding areas may be poorly vascularized and fibrotic, omentum will supply good tissue into the area of the fistula. Even if the omentum is short, it can be mobilized to reach the pelvis if the full length of the gastroepiploic arch is mobilized. Turner-Warwick has stated "...even the shortest omental apron will reach the pelvis..." The spleen should not need to be mobilized for this. Nonabsorbable sutures should not be used because they may become exposed to the fistulous area of either the bladder or vagina and cause calculi or persistent fistulae. If the omentum overlaps the area of the fistulae, the fistulae will usually close even if the suture lines in bladder or vagina are tenuous, break down, or cannot be closed adequately.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2340.

Question 17 of 150
A 52-year-old man with erectile dysfunction undergoes videourodynamics for voiding dysfunction. A videourodynamic image, taken early in filling (at the point indicated by dotted line in the urodynamic tracing), is shown. The videourodynamics suggests a diagnosis of:

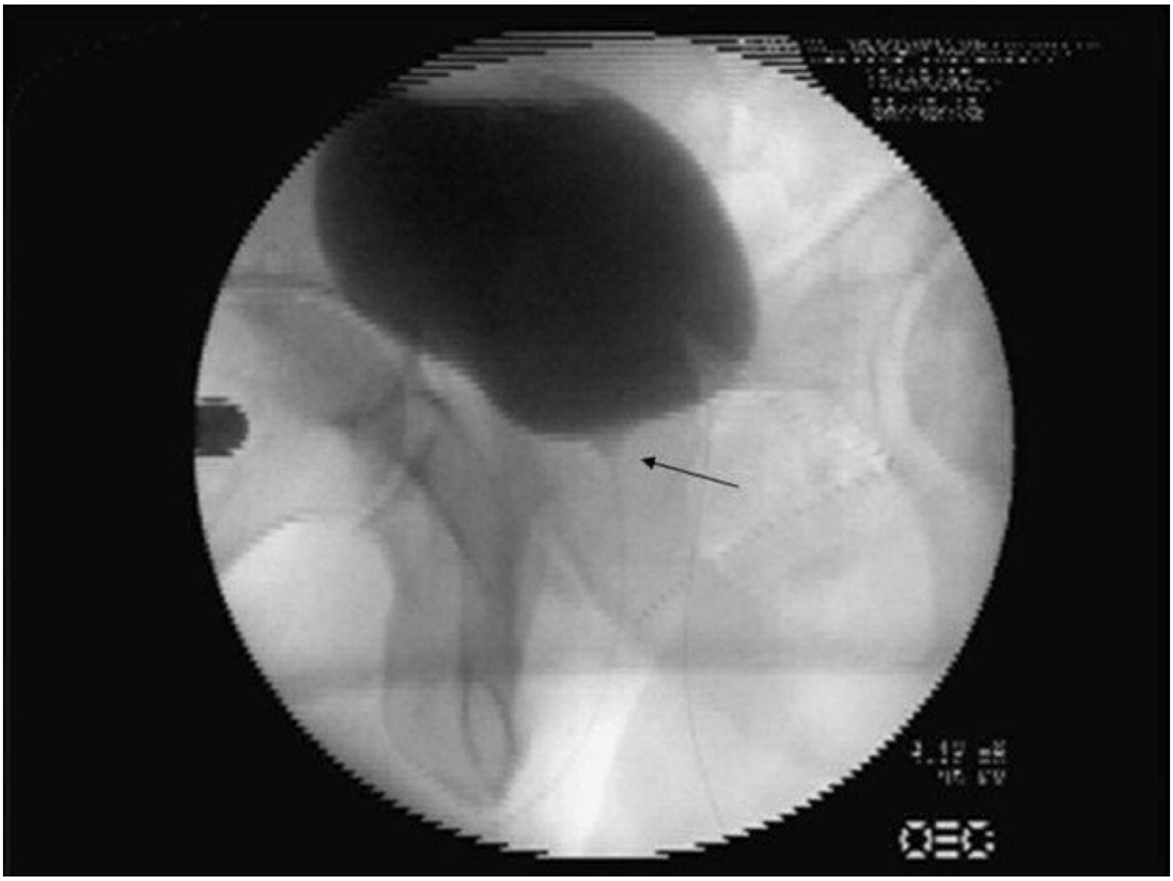
A: bladder neck dyssynergia.

B: cervical spinal stenosis.

C: Parkinson's disease.

D: Multiple System Atrophy (Shy-Drager).

E: multiple sclerosis.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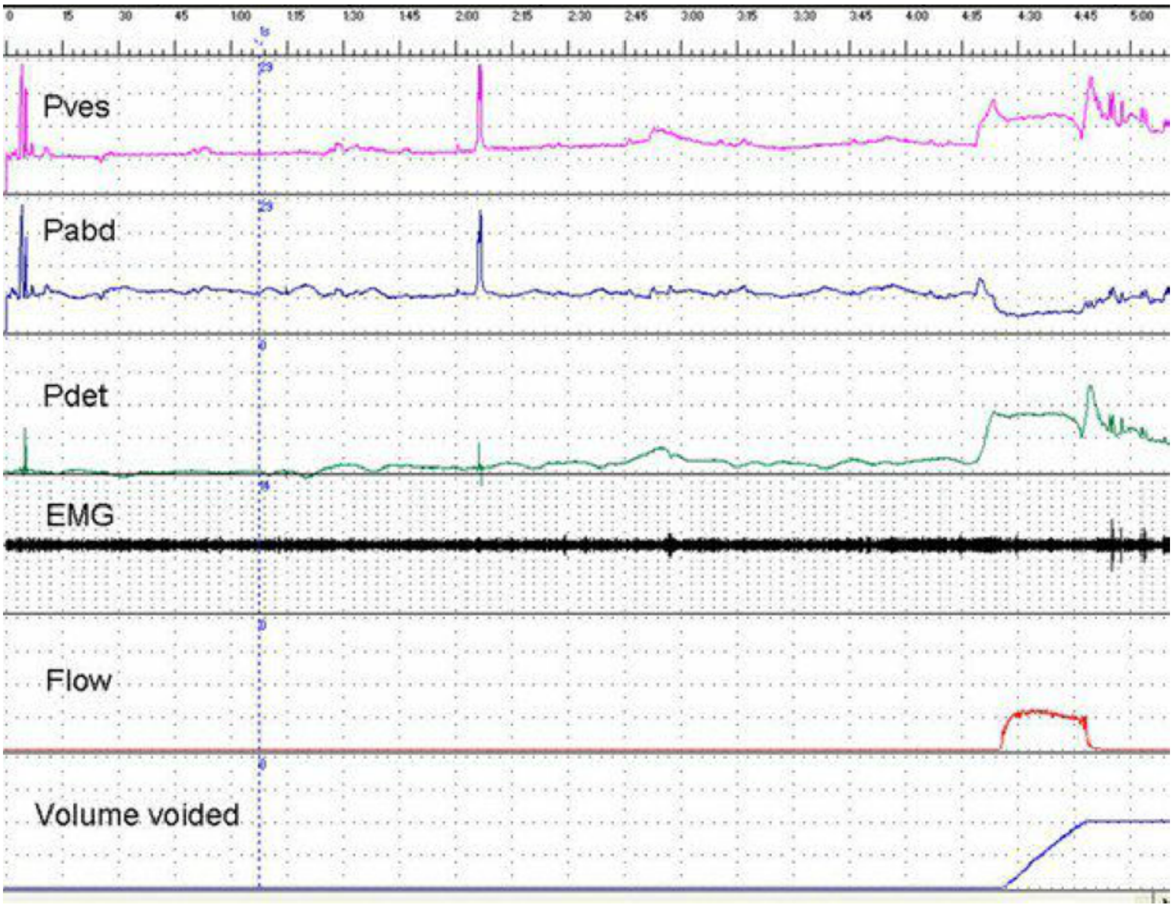

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D: "Multiple System Atrophy (Shy-Drager)." is correct.

The cystogram demonstrates an open bladder neck at rest. The urodynamics tracing shows that there was no detrusor activity at the instant the image was obtained. An open bladder neck at rest in a male is highly suggestive of multiple system atrophy (MSA) in the absence of prior prostate surgery. Although other neurological diseases may result in an open bladder neck at rest, none of these are listed except MSA. Erectile dysfunction is often found in MSA, and this finding in concert with the open bladder neck at rest distinguishes this condition from Parkinson's disease which is often clinically similar in many other respects. Other symptoms of MSA may include other autonomic dysfunctions. Bladder neck dyssynergy would have a closed bladder neck with filling. Cervical spinal stenosis and MS would not typically have an open bladder neck at rest.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2018-2019.

Question 18 of 150
When compared to age-matched controls, men treated with etoposide and platinum-based chemotherapy for NSGCT are at increased long term risk of:

A: systemic infection.

B: pulmonary fibrosis.

C: cardiovascular disease.

D: ototoxicity.

E: autoimmune disease.

C: "cardiovascular disease." was the correct answer.

The long term toxicity of bleomycin containing chemotherapy regimens includes pulmonary fibrosis however etoposide and platinum does not appear to be associated with this toxicity. There is no chronic increase in risk of systemic infection despite a short term risk of neutropenic sepsis during therapy. Several large scale epidemiologic studies have recently concluded that men treated with either radiation therapy or systemic platinum containing chemotherapy are at significantly increased risk of developing both fatal cardiovascular events as well as secondary malignancy after extended follow-up.

Fossa SD, Gilbert E, Dores GM, et al: Noncancer causes of death in survivors of testicular cancer. J NAT CA INST 2007:99:533-544.

Travis LB, Fossa SD, Schonfeld SJ, et al: Second cancers among 40,576 testicular cancer patients: Focus on long-term survivors. J NAT CA INST 2005;97:1354-1365.

Question 19 of 150
Renal blood flow is autoregulated by:

A: sympathetic nerves.

B: GFR.

C: cardiac output.

D: parasympathetic nerves.

E: afferent glomerular arteriolar resistance

E: "afferent glomerular arteriolar resistance." was the correct answer.

Autoregulation of GFR and renal blood flow occurs primarily through variations in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as distal tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFRs over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

Shoskes DA, McMahon AW: Renal Physiology and Pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1131.

Question 20 of 150
In idiopathic calcium oxalate stone formers, Randall's plaques originate:

A: in the basement membranes of the thin loops of Henle.

B: within the renal collecting ducts.

C: in the renal interstitium.

D: on the urothelial surface of the papilla.

E: in the vasa recta.

A: "in the basement membranes of the thin loops of Henle." is correct.

In idiopathic calcium oxalate stone formers, crystal deposits composed of calcium phosphate originate within the basement membrane of the thin loops of Henle and enlarge into the surrounding interstitium and vasa recta. The plaques then progress to a subepithelial location where they ultimately erode through the papillary surface and form an anchored site for calcium oxalate stone formation. In patients with calcium oxalate stones of a different etiology, the site of initial crystal formation differs.

Evan AP, Lingeman JE, Coe FL, et al: Randall's plaque of patients with nephrolithiasis begins in basement membranes of thin loops of Henle. J CLIN INVEST 2003;111:607-615.

Question 21 of 150
A 55-year-old man had a negative TRUS guided 10-core prostate biopsy two years ago for a PSA of 5 ng/ml. Now his PSA is 7 ng/ml. The next step is:

A: endorectal MRI scan prior to biopsy.

B: 12-core biopsies.

C: 12-core biopsies including anterior apical horn biopsies.

D: 12-core biopsies including transition zone biopsies.

E: saturation biopsies with patient under anesthesia.

C: "12-core biopsies including anterior apical horn biopsies." was the correct answer.

Repeat TRUS directed biopsies for a man with a prior negative biopsy should be at least 12 cores and should include anterior apical horn biopsies. The likelihood of a positive biopsy using this technique is between 35-50% and is similar to the yield of saturation biopsy techniques. Transition zone biopsies are also helpful but less critical than anterior apical biopsies. MRI scan can be helpful to direct repeat prostate biopsies but is expensive and is usually not the next step. Anterior apical biopsies can be obtained by transrectal or perineal approach.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Meng MV, Franks JH, Presti JC Jr, Shinohara K: The utility of apical anterior horn biopsies in prostate cancer detection. UROL ONC 2003;21:361-365.

Presti JC Jr: Repeat prostate biopsy--when, where, and how. UROL ONC 2009;27:312-314

Question 22 of 150
An asymptomatic, 65 kg man with a serum creatinine of 2.0 mg/dl is evaluated for recurrent renal calculi. A 24-hour urinary creatinine measurement is 0.5 gm. This finding is most consistent with:

A: an incomplete collection.

B: low protein diet.

C: hydrochlorothiazide therapy.

D: resolving renal insufficiency.

E: unilateral obstruction.

A: "an incomplete collection." is correct.

As long as renal function is at a steady state, 24-hour excretion of creatinine should be approximately 1 gm per day in a patient of this size. This test is most utilized because it is readily obtainable and has good validity and reproducibility. The daily variability is only about 10% and thus a specimen with only 0.5 gm of creatinine in a patient with chronic but stable renal insufficiency suggests an incomplete timed collection.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1132-1132.

Question 23 of 150
A pregnant woman has a ureteral calculus causing pain. She has failed observation and cannot tolerate a ureteral stent. The best definitive management is:

A: SWL.

B: ureteroscopy with EHL.

C: ureteroscopy with laser lithotripsy.

D: ureteroscopy with ultrasonic lithotripsy.

E: laparoscopic ureterolithotomy.

C: "ureteroscopy with laser lithotripsy." is correct.

Most calculi in pregnant women should be initially managed by observation with stenting reserved for persistent symptoms or infection. When intervention is indicated ureteroscopy using the holmium:YAG laser may be safely performed during pregnancy. SWL is never indicated in pregnancy due to concerns about fetal damage. The peak pressures from EHL are transmitted beyond the probe leading to similar concerns about damage to the fetus. Ultrasonic lithotripsy has the theoretical concern of damage to fetal hearing. Laparoscopic management, while possible is much more invasive than ureteroscopic approaches and may be difficult with a gravid uterus.

Chew BH, Denstedt JD: Ureteroscopy and retrograde ureteral access, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 45, pp 1519-1520.

Question 24 of 150
A 68-year-old man with advanced prostate cancer is to receive sipuleucel-T (PROVENGE®). Premedication should include acetaminophen and a(n):

A: antihistamine.

B: mineralocorticoid.

C: glucocorticoid.

D: benzodiazepine.

E: opioid.

A: "antihistamine." was the correct answer.

Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex-vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colony-stimulating factor (an immune-cell activator). In men with asymptomatic or minimally symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival was demonstrated compared to placebo. The most common side effects included chills, fatigue, and pyrexia which are common with release of cytokines. The recommended premedications are acetaminophen and an antihistamine. Glucocorticoids and opioids are sometimes given at the time of I.V. chemotherapy but are not indicated at the time of immune therapy. Mineralocorticoids and anxiolytics are not indicated for this immunotherapy.

Kantoff PW, Higano CS, Shore ND, et al: Sipuleucel-T immunotherapy for castration-resistant prostate cancer. NEJM 2010;363:411-422.

Question 25 of 150
Calcium reabsorption induced by parathyroid hormone and Vitamin D occurs primarily in the:

A: proximal convoluted tubule.

B: collecting duct.

C: thick ascending loop of Henle.

D: distal tubule.

E: proximal straight tubule.

D: "distal tubule." is correct.

The site of action of both parathyroid hormone (PTH) and Vitamin D is on the distal tubule. Calcium resorption occurs in this region of the kidney architecture under hormonal influence. Calcium is reabsorbed in the proximal convoluted tubule as well, but the difference is that it is not under the influence of PTH. The collecting ducts and tubules as well as the loop of Henle are not responsible for calcium resorption and homeostasis.

Question 26 of 150
A 48-year-old woman has abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:

A: serial creatinine measurements.

B: diuretic renogram.

C: cystoscopy and retrograde pyelogram.

D: antegrade pyelogram.

E: renal ultrasound.

B: "diuretic renogram." was the correct answer.

Radionuclide bone scans may reveal delayed concentration of tracer in the kidney due to a generous collecting system or due to true obstruction. This finding should be confirmed by a functional study such as an contrast CT scan or nuclear renogram, which should help determine whether or not this represents a functionally significant obstruction. More invasive procedures such as cystoscopy and retrograde pyelogram, or an antegrade pyelogram are not indicated at this point. Serial creatinine measurements will help follow overall renal function but will not determine functional obstruction. Renal ultrasound is an anatomic study and may show hydronephrosis but will not determine if it is functional.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1210.

Question 27 of 150
A 68-year-old man undergoes a partial penectomy for a 4 cm squamous cell carcinoma with lymphovascular invasion and involvement of the subepithelial connective tissue. Physical exam reveals a 1.5 cm fixed, right inguinal mass. CT scans of the abdomen and pelvis are normal. His pathologic tumor stage (p) and clinical lymph node stage (c) are:

A: pTa cN1.

B: pT1a cN1.

C: pT1b cN2.

D: pT1b cN3.

E: pT2 cN3.

D: "pT1b cN3." was the correct answer.

The 2010 AJCC staging for penile cancer made several significant changes. This patient has a pT1 tumor because of his subepithelial connective tissue involvement. Those patients with low grade tumors and without lymphovascular invasion are pT1a. This patient, however, has lymphovascular invasion and as a result is a pT1b. Patients with lymphovascular invasion are in fact at higher risk for metastatic disease. For the first time, nodal staging is divided into both clinical and pathologic staging schemes. With a palpable, fixed nodal mass, regardless of the size or unilateral/bilateral involvement, the clinical lymph node status is cN3.

Edge, SB, Byrd D, Compton C, Fritz A: AJCC Staging Manual, ed 7. New York, Springer-Verlag, 2010, chap 40, pp 449-450.

Question 28 of 150
A 70-year-old neurologically normal woman has random, large volume urinary incontinence. Medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and PVR is 40 ml. The urodynamic study shown does not reveal incontinence or definable abnormality. The most likely cause of her incontinence is:

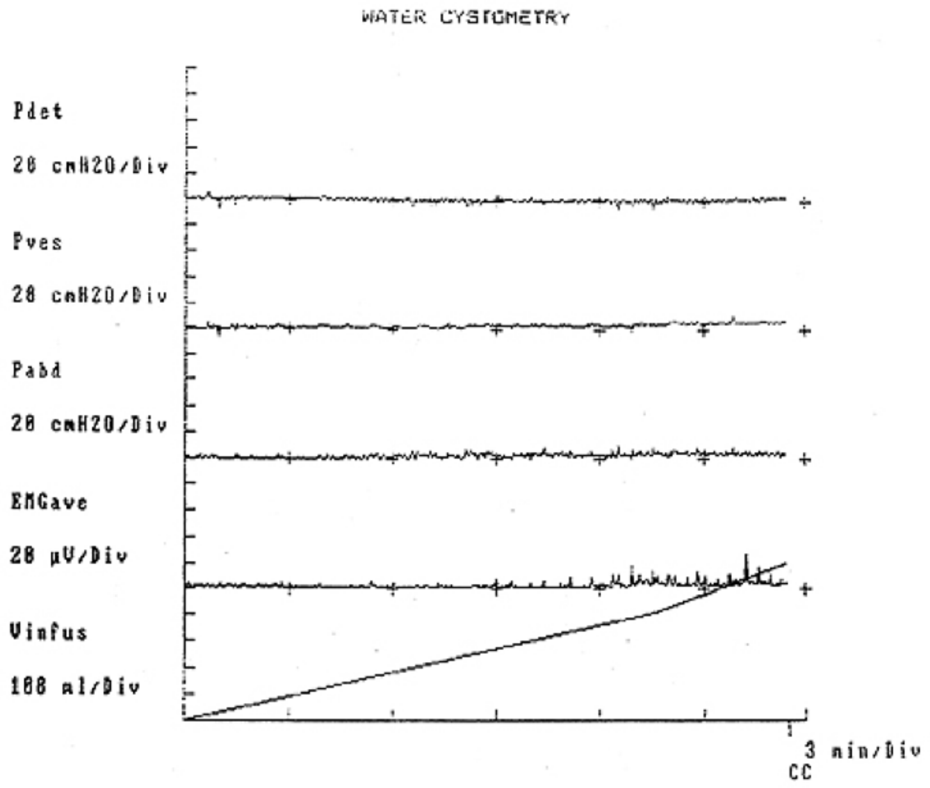
A: overflow.

B: idiopathic detrusor overactivity.

C: detrusor overactivity with impaired contractility.

D: intrinsic sphincter deficiency.

E: vesicovaginal fistula.



B: "idiopathic detrusor overactivity." was the correct answer.

This patient has urgency incontinence secondary to detrusor overactivity, as indicated by the random nature of the incontinence. Even though idiopathic detrusor overactivity implies the presence of involuntary bladder contractions in the absence of neurologic disease, a CMG will fail to demonstrate involuntary bladder contractions in approximately 50% of patients with clinical urge incontinence. Detrusor overactivity with impaired contractility and overflow incontinence is not the cause in this case since the PVR is low. The primary cause of the incontinence is not stress (increase in abdominal pressure) related, particularly not intrinsic sphincter deficiency, since urinary leakage did not occur during Valsalva maneuvers. The characteristics of the incontinence are not consistent with a vesicovaginal fistula since the urinary leakage is not continuous.

Jackson S, Abrams P: The cystometrogram, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 10, pp 69-76.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, pp 1992-1993.

Question 29 of 150
The factor that promotes stone formation during pregnancy is:

A: increased parathyroid hormone levels.

B: absorptive hypercalciuria.

C: placental suppression of 1,25-dihydroxycholecalciferol.

D: decreased urinary glycosaminoglycans.

E: decreased urinary citrate levels.

B: "absorptive hypercalciuria." is correct.

During normal pregnancy there is a physiological state of absorptive hypercalciuria. Placental production of 1,25-dihydroxycholecalciferol increases intestinal calcium absorption and secondarily suppresses parathyroid hormone. Urinary citrate and glycosaminoglycan excretion (inhibitors of stone formation) are increased. Therefore, overall stone rate during pregnancy is unchanged.

Biyani CS, Joyce A: Urolithiasis in pregnancy. BRI J UROL 2002;89:811-818.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1391

Question 30 of 150
A 75-year-old man underwent nephroureterectomy for pT3N0Mx ureteral cancer six weeks ago. He is now considered for adjuvant chemotherapy. He lives independently and maintains his own home; however, he cannot perform strenuous activity. He is out of bed most of the day. His ECOG (Eastern Cooperative Oncology Group) Performance Status is:

A: 0.

B: 1.

C: 2.

D: 3.

E: 4.

B: "1." is correct.

The ECOG Performance Status, also called the WHO or Zubrod score runs from 0 to 5, with 0 denoting perfect health and 5 death.

¬ʌ 0 - Fully active, without restriction.

¬ʌ 1 - Completely ambulatory, but restricted in physically strenuous activity. Able to carry out work of a light or sedentary nature such as light housework or office work.

¬ʌ 2 - Ambulatory and capable of all self care but unable to carry out any work activities. Out of bed > 50% of waking hours.

¬ʌ 3 - Capable of only limited self-care and confined to a bed or chair > 50% of waking hours.

¬ʌ 4 - Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair

¬ʌ 5 - Death

Oken MM, Creech RH, Tormey DC, et al: Toxicity And Response Criteria Of The Eastern Cooperative Oncology Group. AM J CLIN ONCOL 1982;5:649-655.

Galsky MD, Hahn NM, Rosenberg J, et al: Treatment of patients with metastatic urothelial cancer "unfit" for Cisplatin-based chemotherapy. J CLIN ONCOL 2011;29:2432-2438.

Question 31 of 150
A 65-year-old man undergoes radical cystectomy and orthotopic neobladder urinary diversion for pT2b urothelial carcinoma of the bladder. A key maneuver for maintaining continence is:

A: maximizing the length of the neobladder.

B: minimizing the length of the urethra to prevent kinking.

C: placing an intraoperative urethral sling.

D: forming a funnel-shaped reservoir.

E: performing bilateral nerve-sparing surgery.

E: "performing bilateral nerve-sparing surgery." was the correct answer.

Factors that may increase leakage in patients with an orthotopic neobladder include: shortened functional urethral length, non-nerve sparing, decreased membranous urethral sensation, and increased time after diversion (as patients age.) Formulation of a funnel-shaped reservoir in fact increases kinking and increases the likelihood of failure of spontaneous voiding. Nerve-sparing may in fact aid in the functionality of the neobladder although exact mechanism is unknown. No data exists for a placement of urethral sling being helpful in maintaining continence and may promote hypercontinence.

Thurairaja R, Burkhard FC, Studer UE: The orthotopic neobladder. BRI J UROL INT 2008;102:1307-1313.

Question 32 of 150
A 32-year-old man has recurrent calcium oxalate stone formation. Despite an oxalate restricted diet, his urinary oxalate is high. The next step is:

A: pyridoxine.

B: hydrochlorothiazide.

C: allopurinol.

D: alpha-mercaptoproprionyl glycine.

E: Vitamin B12.

A: "pyridoxine." was the correct answer.

Pyridoxine reduces oxalate production in up to 50% of patients with mild hyperoxaluria. Pyridoxine, a component of Vitamin B6, is a co-factor for alanine:glyoxylate aminotransferase (AGT), which converts glyoxylate to glycine. In doing so, less glyoxylate is available as a substrate for LDH which leads to a decrease in endogenous oxalate production. The other agents will have no impact on urinary oxalate.

Ortiz-Alvarado O, Miyaoka R, Kriedberg C, et al: Pyridoxine and dietary counseling for the management of idiopathic hyperoxaluria in stone-forming patients. UROL 2011;77:1054-1058.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, pp 1415-1427.

Question 33 of 150
A 68-year-old woman on recommended daily allowance (RDA) vitamins develops CIS of the bladder and is starting intravesical immunotherapy. In an effort to maximize tumor response rates and minimize side effects she should receive induction and subsequent maintenance therapy with BCG and:

A: discontinue vitamins.

B: continue RDA vitamins.

C: initiate mega dose vitamin supplements.

D: interferon, and RDA vitamins.

E: interferon, and mega dose vitamin supplements.

B: "continue RDA vitamins." is correct.

The use of both vitamin supplements and alpha interferon has become common in conjunction with BCG therapy. Recently a randomized prospective trial of 670 patients was completed to address these issues. BCG alone with RDA vitamins was associated with an equal disease free outcome when compared to combinations of interferon or mega dose vitamin supplements. Megadose vitamins showed no increased benefits when compared with RDA vitamins. All patients were treated with induction and maintenance BCG. Patients receiving interferon experienced greater side effects, particularly fever and constitutional symptoms. There is no compelling evidence to suggest that patient should discontinue RDA vitamins.

Nepple KG, Lightfoot AJ, Rosevear HM, et al: Bladder Cancer Genitourinary Oncology Study Group. Bacillus Calmette-Guerin with or without interferon alpha-2b and megadose versus recommended daily allowance vitamins during induction and maintenance intravesical treatment of nonmuscle invasive bladder cancer. J UROL 2010;184:1915-1919.

Question 34 of 150
A 55-year-old multiparous woman has urge incontinence. Urinalysis is normal and physical examination demonstrates a Grade 3 cystocele. Urodynamics reveal a PVR of 100 ml, detrusor overactivity resulting in incontinence, and a detrusor pressure at maximum flow (8 ml/sec) of 50 cm H_2O. When the cystocele is reduced, no stress urinary incontinence can be elicited. The next step is:

A: antimuscarinic medication.

B: alpha-blocker therapy.

C: midurethral sling.

D: anterior colporrhaphy.

E: midurethral sling and anterior colporrhaphy.

D: "anterior colporrhaphy." is correct.

This patient suffers from bladder outlet obstruction secondary to a large cystocele as indicated by a high voiding pressure and low flow rate. The obstruction secondarily causes detrusor instability and subsequent urgency incontinence. Despite reducing the cystocele, no stress incontinence can be elicited indicating good support of the urethrovesical junction. The best treatment is to repair the cystocele with a technique such as anterior colporrhaphy. The absence of stress urinary incontinence precludes the need for a sling and if performed alone is likely to exacerbate the obstruction. Treatment with antimuscarinic medication in a patient with obstruction is likely to increase the PVR. Although alpha-blockers may be used off-label for primary bladder neck obstruction in women, the best treatment in this patient with a large cystocele is to correct the underlying abnormality.

Nitti VM: Bladder outlet obstruction in women, in Nitti VM (ed): PRACTICAL URODYNAMICS, Philadelphia, WB Saunders Co, 1998, chap 17, pp 197-210.

Herschorn S: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 66, pp 2217-2230.

Question 35 of 150
A 72-year-old woman has had six symptomatic UTIs over the past year. These infections return shortly after antibiotic courses are concluded, and cultures have demonstrated significant colony counts of E. coli. Renal ultrasound is normal. The next step is:

A: ciprofloxacin prophylaxis.

B: nitrofurantoin prophylaxis.

C: oral low dose estrogen.

D: intravaginal estrogen.

E: lactobacillus.

D: "intravaginal estrogen." is correct.

The efficacy of estrogen for the prevention of UTI in post-menopausal women has been demonstrated in several studies. There appears to be a higher effectiveness rate in topically applied estrogen in the vagina with an improvement in lactobacillus concentrations, decreased vaginal pH and a decrease in UTI episodes from 5.9 to 0.5 episodes per year. Antimicrobial prophylaxis may be used at low dose if topical estrogen fails. Lactobacillus probiotics, while effective in an investigational setting, have not been subject to the scrutiny of controlled trials.

Stamm WE, Norrby SR: Urinary tract infection disease panorama and challenge. J INF DIS 2001;103:1-4.

Question 36 of 150
A 69-year-old man with metastatic castrate resistant prostate cancer experiences symptomatic clinical progression following I.V. docetaxel and oral prednisone given every three weeks. In order to improve survival, the most appropriate next step is:

A: mitoxantrone.

B: sipuleucel-T.

C: docetaxel weekly.

D: cabazitaxel.

E: ketoconazole.

D: "cabazitaxel." was the correct answer.

A chemotherapeutic intervention proven to prolong survival in the setting of metastatic castrate resistant prostate cancer resistant to docetaxel is cabazitaxel. This regimen was FDA approved for this indication in 2010 and demonstrated a 30% reduction in the chance of dying of prostate cancer in a prospective phase III randomized trial. Mitoxantrone served as the control arm of the trial and has not been associated with a survival advantage in prostate cancer. Sipuleucel-T has been proven to extend survival in asymptomatic metastatic castrate resistant patients. Ketoconazole has not been proven to demonstrate a survival advantage in this setting and switching to weekly docetaxel has also not been associated with a survival advantage. Abiraterone, an androgen biosynthesis inhibitor has reported a survival difference as well in a phase III trial compared against placebo.

de Bono JS, Oudard S, Ozguroglu M, et al; TROPIC Investigators: Prednisone plus cabazitaxel or mitoxantrone for metastatic castration-resistant prostate cancer progressing after docetaxel treatment: A randomized open-label trial. LANCET 2010;376:1147-1154.

Question 37 of 150
A 60-year-old man has renal insufficiency due to atherosclerotic renal artery disease. The most important prognostic factor for successful renal revascularization to preserve renal function is:

A: duration of hypertension.

B: proportion of sclerotic glomeruli on renal biopsy.

C: serum creatinine.

D: presence of collateral blood supply on angiography.

E: presence of renal artery occlusion.

C: "serum creatinine." was the correct answer.

Revascularization to preserve renal function in patients with atherosclerotic renal artery stenosis will most likely benefit those who have not yet sustained permanent global impairment of renal function. Complete occlusion of the renal artery does not necessarily preclude intervention, since renal viability may be maintained through the presence of collateral arterial supply. The Cleveland Clinic group has found that 89% of such patients with initial serum creatinine < 3.0 mg/dl could be expected to have stable or improved renal function after revascularization. However, renal biopsy to evaluate the severity of renal parenchymal involvement as a guide to revascularization was found to be helpful only if the initial serum creatinine exceeded 4.0 mg/dl. In addition to the absolute level of renal function, the rate of decline of renal function is an important determinant of outcome after intervention. Duration of hypertension does not predict recoverability in this setting.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1175.

Question 38 of 150
The most accurate method to determine the length of a graft needed for repair of an anterior urethral stricture is:

A: urethroscopy.

B: ultrasound.

C: VCUG.

D: retrograde urethrogram.

E: CT imaging.

B: "ultrasound." is correct.

Prior to harvesting a Buccal graft or other graft for repair of an anterior urethral stricture, ultrasound can easily identify the area of stricture as well as the area of scarred urethra which must be resected to adequately restore urethral continuity using an onlay graft. Sonourethrography has been shown to be a useful adjunct to standard radiographic imaging of bulbar urethral strictures. Although it can aid in the visualization of the corpus spongiosum including vascular structures, calcifications, and periurethral fibrosis, incorporation of this information into surgical decision making algorithms has not followed. The primary benefit of ultrasound imaging is the lack of distortion created by the oblique position during retrograde urethrogram (RUG). Thus the sonogram will more accurately measure the length of the stricture. In bulbar urethral strictures of intermediate length, RUG will underestimate the true length of the stricture by up to 13 mm. VCUG can delineate the urethra proximal to the stricture unless the patient is unable to void, in which case sonography may allow visualization of the posterior urethra by vigorous suprapubic pressure under anesthesia. Urethroscopy will not demonstrate underlying spongiofibrosis, while VCUG and retrograde urethrography are subject to distortion and measurement error. CT urethrograms have only been used to identify acute injuries of the urethra.

Choudhary S, Singh P, Sundar E, et al: A comparison of sonourethrography and retrograde urethrography in evaluation of anterior urethral strictures. CLIN RAD 2004;59:736-742.

Gallentine ML, Morey AF: Imaging of the male urethra for stricture disease. UROL CLIN N AM 2002;29:361-372

Question 39 of 150
A 21-year-old woman develops hematuria and a mass in the allograft 18 months after renal transplant. Needle biopsy of the mass reveals an Epstein-Barr virus positive lymphoproliferative tumor. MRI scan is shown. The next step is:

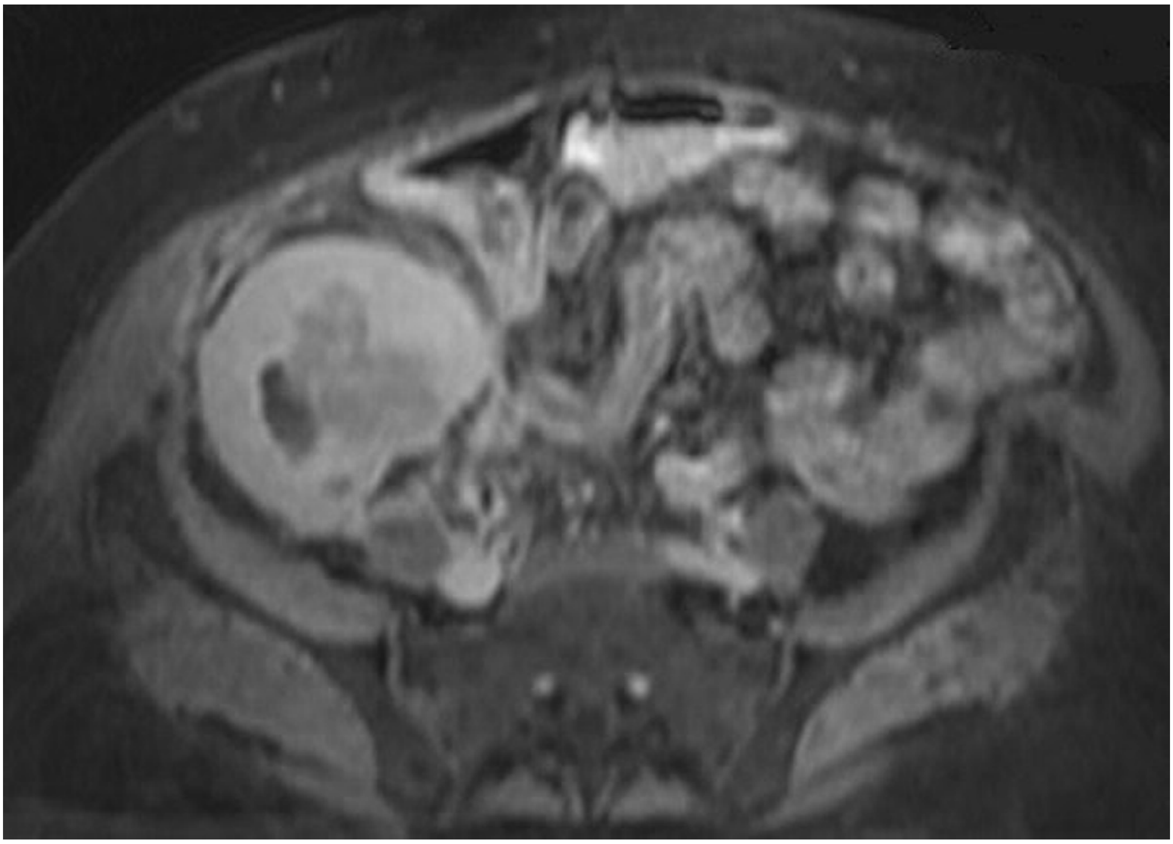
A: reduce immunosuppression.

B: ganciclovir.

C: rituximab.

D: chemotherapy.

E: allograft nephrectomy.



A: "reduce immunosuppression." is correct.

Post-transplant lymphoproliferative disorders are most commonly non-Hodgkin lymphomas and are often associated with Epstein-Barr virus infection. The reported incidence ranges from 0.8% to 15%, and varies with the type of immunosuppression utilized. These tumors may respond to drastic reduction or withdrawal of immunosuppression. Irradiation is not generally effective and may exaggerate the degree of immune compromise. Treatment with anti-viral medications such as ganciclovir may be beneficial following reduction in immunosuppression. Rituximab (anti CD-20) and chemotherapy are second line therapies for this type of tumor. Nephrectomy may be necessary, but is not the initial treatment.

Sahadevan M, Kasiske BL: Long-term management and complications, in Danovitch GM (ed): HANDBOOK OF KIDNEY TRANSPLANTATION, ed 4. Philadelphia, Lippincott Williams & Wilkins, 2004, chap 9, pp 268-270.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1295.

Question 40 of 150
A 35-year-old man with C5 quadriplegia has urinary incontinence managed by condom catheter drainage. Urodynamics reveal a detrusor LPP of 60 cm H_2O at 150 ml. The next step is:

A: observation.

B: CIC.

C: antimuscarinic medication.

D: external sphincterotomy.

E: male sling.

D: "external sphincterotomy." is correct.

This patient has a high detrusor LPP that puts his upper urinary tract at risk. Since he is a quadriplegic and is managed with a condom catheter, the next best step is an external sphincterotomy that can be done surgically or pharmacologically with injection of botulinum. Observation and a male sling do nothing to reduce the effects of his bladder on the upper urinary tract. CIC is usually not feasible for quadriplegics and would not be helpful in this situation since the functional bladder capacity is only 150 ml. Antimuscarinic medication alone would also not be helpful since it would not decrease the detrusor leak point pressure.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, p 2032.

Rudy DC: Spinal cord injuries, in O'Donnell PD (ed): URINARY INCONTINENCE, St. Louis, Mosby, 1997, chap 46, pp 331-338.

Question 41 of 150
A 52-year-old woman has acute onset of right flank pain. She has a long-standing history of diarrhea secondary to laxative abuse. Urinalysis shows numerous RBCs and a pH 6.5. While in the emergency room she passes a small stone. The most likely stone composition is:

A: xanthine.

B: uric acid.

C: struvite.

D: ammonium acid urate.

E: calcium phosphate.

D: "ammonium acid urate." is correct.

Ammonium acid urate stones are rare. They are found in patients with chronic diarrhea and a history of laxative abuse. These patients have low urinary sodium excretion. Their urinary citrate levels are usually low secondary to bicarbonate loss from the gastrointestinal tract. Urine pH is usually above 6.3; when urine pH is below 5.5 uric acid will likely precipitate. Ammonium acid urate stones are also found in patients with ileal resection or with large portions of their colon removed. Chronic diarrhea and UTIs are additional risk factors. Ammonium acid urate stones are relatively radiolucent and may be mistaken for uric acid stones. Ammonium acid urate stones do not dissolve with alkalinization. Calcium phosphate stones typically form in the setting of hypercalciuria and/or hypocitraturia and are not associated with laxative abuse.

Matlaga BR, Shah OD, Assimos DG. Drug-induced urinary calculi. REV UROL 2003;5:2272-2231.

Soble JJ, Hamilton BD, Streem SB: Ammonium acid urate calculi: A reevaluation of risk factors. J UROL 1999;161:869-873.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, pp 1387-1389.

Question 42 of 150
A 12-year-old boy undergoes a dismembered pyeloplasty with nephrostomy drainage for symptomatic UPJ obstruction. A nephrostogram performed two weeks later shows no drainage across the UPJ. The next step is:

A: repeat nephrostogram in two weeks.

B: MR urography.

C: antegrade renal perfusion study (Whitaker test).

D: convert the nephrostomy to a nephroureteral stent.

E: retrograde pyelography and ureteral stent placement

A: "repeat nephrostogram in two weeks." was the correct answer.

After a successful dismembered pyeloplasty, it is not uncommon for a delayed opening of the anastomosis when using nephrostomy drainage. As long as the patient is doing well clinically, the best management during the early post-operative period is patience and repeat assessment to allow the anastomotic edema to subside further. Repeat nephrostogram in two weeks is the appropriate next step. Some have advocated a simple clamping trial of the nephrostomy tube and check the residual amount afterward. MR urography and a Whitaker study are unwarranted during the early post-operative period, as are the retrograde pyelography/stent placement and conversion of the nephrostomy tube to a nephroureteral stent. Stent placement could also damage the anastomosis.

Carr MC, El-Ghoneimi A: Anomalies and surgery of the ureteropelvic junction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 115, p 3380

Question 43 of 150
A 62-year-old man with a serum creatinine of 4.7 mg/dl has persistent bleeding after TURP. The bleeding time is prolonged, but the PT, PTT, fibrinogen and platelet count are normal. The best treatment is:

A: aminocaproic acid.

B: Vitamin K.

C: fresh frozen plasma.

D: desmopressin.

E: platelet transfusion.

D: "desmopressin." was the correct answer.

Abnormal bleeding times in patients with renal failure are due to poor platelet aggregation. The coagulopathy may be reversed transiently by desmopressin, cryoprecipitate, conjugated estrogens, blood transfusions, erythropoietin, or dialysis. However, Vitamin K has no activity in the setting of reversing platelet dysfunction in ESRD. Similarly, fresh frozen plasma will affect the coagulation cascade but that shouldn't be abnormal in ESRD patients. Platelet transfusion is not helpful in the setting of normal platelet count as aggregation is not improved with more platelets.

Skorecki K, Green J, Brenner BM: Chronic renal failure, in Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL (eds): HARRISON'S PRINCIPLES OF INTERNAL MEDICINE, ed 16. New York, McGraw-Hill, 2005, chap 261, p 1734.

The most common cause of catheter-associated UTI is:

A: improper catheterization technique.

B: urethral meatal bacteria.

C: break in the drainage system.

D: urinary drainage bag bacteria.

E: bacterial antimicrobial resistance

B: "urethral meatal bacteria." was the correct answer.

Urethral meatal bacteria are the most frequent source of catheter-associated urinary tract infection. Unfortunately, topical urethral meatal antimicrobial agents do not prevent urinary tract infections and frequently cause overgrowth of resistant bacteria. Improper catheterization techniques, breaks in the system, and contamination of the drainage bag are less frequent but preventable causes of catheter-associated infection. Antimicrobials allow growth of resistant bacteria that are more difficult to treat but not more likely to cause infection.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 296-297.

A one-year-old hypertensive boy has a large, fixed abdominal mass. The most likely diagnosis is:

A: congenital mesoblastic nephroma.

B: Wilms' tumor.

C: neuroblastoma.

D: pheochromocytoma.

E: autosomal recessive polycystic kidney disease.

C: "neuroblastoma." was the correct answer.

This boy likely has a neuroblastoma. 50% of these tumors present in children under the age of two. These tumors are usually large, hard, and fixed. Children will often have numerous other paraneoplastic syndromes. Catecholamine release from the neuroblastoma can result in symptoms that can mimic pheochromocytoma including paroxysmal hypertension, palpitations, sweating, and headaches. However, pheochromocytomas tend not to be large masses like this and present in older children. Wilms' tumor usually presents in children a few years older and the masses are more likely to be smooth and less fixed. Hypertension can also be seen but is less common. Congenital mesoblastic nephroma is possible but is usually seen in infants a few months of age and is the most common renal tumor in children less than six months of age. Autosomal recessive polycystic kidney disease can present at any age with a wide spectrum of symptoms. It involves both kidneys and you should be able to palpate bilateral masses. When it presents early in life, it is usually severe and associated with significant renal insufficiency.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3871

Question 46 of 150
A 25-year-old woman has headaches and shortness of breath. Her blood pressure is 160/110 mmHg and serum creatinine is 1.0 mg/dl. She has an abdominal bruit and microscopic hematuria. Renal angiography demonstrates a 6 cm cirsoid arteriovenous fistula and a normal contralateral kidney. The best management is:

A: angiotensin converting enzyme inhibitor.

B: beta-blocker.

C: fistula ligation.

D: angio-embolization.

E: nephrectomy.

E: "nephrectomy." is correct.

Cirsoid arteriovenous fistulae are generally congenital in nature. This must not be confused with the much more common arteriovenous fistulae that results from iatrogenic kidney needle biopsies. Treatment for the congenital cirsoid lesion is indicated in patients with hypertension, cardiomegaly, heart failure, severe hematuria, or angiographic evidence of expansion of the lesion. ACE inhibitors and beta-blockers are not effective in the treatment of this anatomical defect. Cirsoid fistulas are not like a simple arteriovenous connection where one can just ligate a vessel and the lesion is resolved. Due to the complexity of the lesion, angio-embolization is generally considered difficult if not impossible and the patient is at risk for complications, particularly coil migration. Nephrectomy is the treatment of choice. The importance of this concept is to recognize that cirsoid arteriovenous fistula is a different entity than an iatrogenic arteriovenous fistula from biopsies and thus, the treatment is different.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1189.

Question 47 of 150
A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli UTI. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:

A: absorptive hypercalciuria.

B: primary hyperparathyroidism.

C: ectopic hyperparathyroidism.

D: secondary hyperparathyroidism.

E: E. coli UTI.

C: "ectopic hyperparathyroidism." is correct.

Among the conditions this man has, only the ectopic production of parathyroid hormone related peptide would explain his stone formation. E. coli is not a urease producing organism and thus should not cause a stone. Given a history of peptic ulcer disease, a stone can form due to the development of milk-alkali syndrome, however, this is not one of the listed choices. The presence of hypercalcemia rules out secondary hyperparathyroidism. While absorptive hypercalciuria likely is playing a role in this patient, it is more likely due to the effect of ectopic production of parathyroid hormone related peptide due to the hypercalcemia present (homology to PTH in the first 13 amino acids). This ectopic production is most commonly seen with squamous cell carcinoma of the head, neck or lung (as in this case).

Question 48 of 150
Recurrent UTIs in school-age girls is most often influenced by:

A: race.

B: constipation.

C: nocturnal enuresis.

D: fever with initial infection.

E: VUR.

B: "constipation." is correct.

Recurrent UTI in school age girls are significantly related to the following factors; a family history of recurrent UTI, a history of infrequent voiding, diurnal incontinence, poor fluid intake, and constipation. Recurrent UTI rates have not been found to be significantly associated with isolated nocturnal enuresis, race, the presence of VUR, or whether or not the initial infection was febrile in nature.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3261-3263

Question 49 of 150
A 58-year-old man has incontinence and prolonged urination six months following radical retropubic prostatectomy. Urodynamic evaluation with a 10 Fr catheter demonstrates normal bladder capacity and no detrusor overactivity. At 250 ml, Valsalva maneuver increases bladder pressure to 150 cm H_2O without evidence of urinary leakage. The etiology of the incontinence is best determined by:

A: remove catheter and repeat Valsalva maneuver.

B: repeat urodynamic study with suprapubic catheter.

C: uroflowmetry.

D: retrograde urethrogram.

E: cystoscopy.

A: "remove catheter and repeat Valsalva maneuver." is correct.

The patient most likely has an anastomotic stricture and stress incontinence. The 10 Fr catheter is occluding the bladder neck, preventing demonstration of stress incontinence. A repeat urodynamic study with a suprapubic catheter is not necessary since the bladder capacity is known to be normal and there is no evidence of overactivity, and may be overly aggressive. Cystoscopy and retrograde urethrogram would demonstrate the stricture, however these studies would not demonstrate stress incontinence. The simplest study to determine the etiology of the incontinence is removing the urodynamic catheter with the bladder full and asking the patient to Valsalva in order to evaluate sphincteric function.

Chancellor MB: Post prostatectomy incontinence, in Blaivas JG, Chancellor, MB (eds): ATLAS OF URODYNAMICS. Philadelphia, Williams & Wilkens, 1996, pp 240-250.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, p 1986.

Question 50 of 150

A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and postvoid dribbling. Renal ultrasound is normal and a pelvic ultrasound is shown. The most likely diagnosis is:

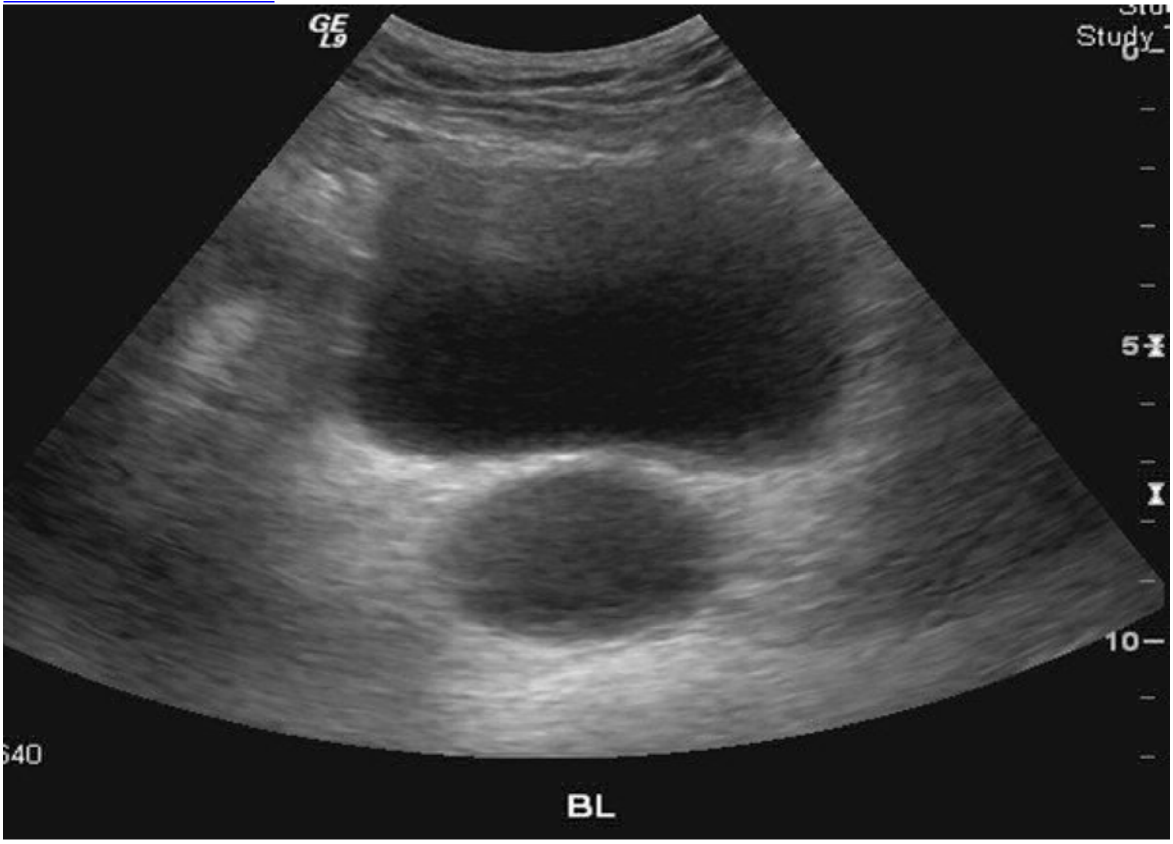
A: mesonephric duct cyst.

B: ectopic ureter.

C: Cowper's duct cyst.

D: prostatic utricle.

E: bladder diverticulum.



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D: "prostatic utricle." is correct.

In boys with proximal hypospadias, the prostatic utricle is often enlarged due to a lack of androgen action. In the female, this would represent the distal 1/3 of the vagina. The ultrasound demonstrates a midline cystic structure behind the bladder which is consistent with a prostatic utricle. While an ectopic ureter, bladder diverticulum, or mesonephric duct cyst could have a similar appearance, they are usually lateral in location. In addition, the history of proximal hypospadias would make a utricle most likely. A Cowper�s duct cyst should be confined to the bulbous and prostatic urethra.

Borer JG, Retik AB: Hypospadias, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 125, p 3711.

Question 51 of 150
The blood supply to the left adrenal gland is derived from branches from the following arteries:

A: aorta and renal.

B: renal and splenic.

C: renal, splenic, and inferior phrenic.

D: aorta, renal, and inferior phrenic.

E: aorta, renal, and splenic.

D: "aorta, renal, and inferior phrenic." is correct.

The blood supply for both the right and left adrenal glands is the same. The three sources for each adrenal gland are derived superiorly from branches of the inferior phrenic artery, in the middle directly from the aorta, and inferiorly from the ipsilateral renal artery.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, pp 20-24.

Question 52 of 150
A 72-year-old man develops dyspnea and hypertension following nephrectomy for RCC with adrenal sparing. The preoperative CT scan shows aortic calcification and a ventilation perfusion scan shows a low probability of pulmonary emboli. The best agent to treat the hypertension is a:

A: diuretic.

B: calcium channel blocker.

C: alpha-blocker.

D: ACE inhibitor.

E: angiotensin receptor blocker.

A: "diuretic." is correct.

This patient has a high probability of having renal artery stenosis. By removing one kidney the situation becomes analogous to the one-kidney, one clip model. In this situation, hypertension is largely maintained by volume and sodium excess. In the face of normal circulating angiotensin II (AII) levels, ACE inhibitors or AII antagonists do not result in marked decrease of blood pressure. Calcium channel and alpha-blockers also are not very effective until the volume overload has been treated. Since the etiology of hypertension is intravascular volume expansion, the best choice is a diuretic.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1161-1167.

Question 53 of 150
A 45-year-old man has left flank pain four hours after a MVC. Physical examination is normal. His blood pressure is 110/60 mmHg, pulse is 80 bpm, and urinalysis demonstrates 5 RBC/hpf. The next step is:

A: cystogram.

B: CT scan.

C: renal ultrasound.

D: isotope renography.

E: observation.

E: "observation." was the correct answer.

Most patients with blunt trauma and microscopic hematuria do not need imaging. The SIU Consensus Statement on Renal Injuries recommends imaging to detect blunt trauma only in selected patients. Adults with gross hematuria or microhematuria and hypotension have a major (e.g. Grades 3,4,5) injury rate of approximately 12.5% and thus warrant further imaging. These recommendations were derived from a number of studies including the seminal article by McAninch and associates in 1989. A review of 2,254 patients with suspected renal trauma seen from 1977 to 1992 was performed by McAninch and colleagues. Of the 1,588 blunt trauma patients with microscopic hematuria and no shock, three had significant injury but these cases were discovered during imaging or exploratory laparotomy for associated injury. Follow-up of 515 of 1,004 patients (51%) who did not undergo initial imaging revealed no significant complications. Adults with blunt renal trauma, microscopic hematuria and no shock (systolic pressure < 90 mm/Hg) or major associated intra-abdominal injuries can safely be spared radiographic imaging.

Miller KS, McAninch JW: Radiographic assessment of renal trauma: Our 15 year experience. J UROL 1995;154:352-355.

Santucci RA, Wessells H, Bartsch G, et al: Evaluation and management of renal injuries: Consensus statement of the renal trauma subcommittee. BJU INT 2004;93:937-954.

Question 54 of 150
Using a monopolar loop, two > 3 cm bladder tumors are endoscopically resected from the bladder dome and left trigone. At the end of the procedure, suprapubic distension is noted. Blood drawn at this point is most likely to reveal:

A: anemia.

B: high glycine level.

C: hyperammonemia.

D: hyponatremia.

E: elevated BUN.

D: "hyponatremia." is correct.

This patient most likely has bladder perforation related to resection at the base of one of these superficial tumors. The bladder dome is often quite thin and is at high risk for perforation during resection. Also, obturator nerve stimulation can cause muscular spasm during resection of a laterally located tumor and this sudden motion may lead to perforation with the resecting loop. The monopolar current requires glycine or another non-electrolyte containing solution to be used in order to avoid dispersion of the current. Extravasation of the irrigation solution is the likely cause of the suprapubic distension. Glycine is quickly metabolized in the liver after absorption and is unlikely to be detected in the serum. However, the remaining extravesical fluid is free water and will cause acute dilutional hyponatremia as it is absorbed. Ammonia should not be elevated in this circumstance and serum BUN only goes up over a longer period of time if there is extravasation of urine with secondary resorption from exposed tissues. It is unlikely that there has been vessel injury from these superficial resections that is severe enough to cause anemia and suprapubic distension acutely.

Nieh PT, Marshall FF: Surgery of bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 78, pp 2479-2483.

Question 55 of 150
A 62-year-old man has a right adrenalectomy for an 8 cm pheochromocytoma and 1 of 4 paracaval lymph nodes reveals involvement with tumor. Serum metanephrines, MIBG scan, and blood pressure are normal postoperatively. The next step is:

A: observation.

B: somatostatin.

C: mitotane.

D: metyrapone.

E: aminoglutethimide.

A: "observation." is correct.

Approximately 10% to 20% of pheochromocytomas are malignant and malignancy is more common in tumors larger than 5 cm and in extra-adrenal tumors. Observation is the most appropriate therapy in a fully resected asymptomatic patient. Mitotane has proven palliative benefit in cases of metastatic adrenal cortical carcinoma. Metyrapone and aminogluthamide can be use to ameliorate hormonal production in metastatic adrenal cortical carcinoma. Somatostatin or octreotide has limited use in the palliative treatment of secreting metastatic pheomochromocytoma causing hypertension. Radiolabeled MIBG therapy can be useful in symptomatic patients with a positive MIBG scan for metastases. Combination chemotherapy has been used in the treatment of metastatic pheochromocytoma with some limited success. The most commonly used regimen is cyclophosphamide, vincristine, and dacarbazine.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1862.

Adjallé R, Plouin PF, Pacak K, Lehnert H: Treatment of malignant pheochromocytoma. HORM METAB RES 2009;41:687-696.

Scholz T, Eisenhofer G, Pacak K, et al: Clinical review: Current treatment of malignant pheochromocytoma. J CLIN ENDOCRIN METAB 2007;92:1217-1225.

Question 56 of 150
An 82-year-old woman has asymptomatic E. coli bacteriuria. The next step is:

A: ciprofloxacin.

B: trimethoprim-sulfamethoxazole.

C: nitrofurantoin.

D: re-culture urine.

E: observation.

E: "observation." is correct.

Asymptomatic bacteriuria is particularly common in elderly women. There is evidence in adults that while 80% of patients with asymptomatic bacteriuria can be cured with a seven day course of oral antimicrobial therapy, long term cure rates are no better than placebo therapy because of reinfections in treated patients and spontaneous cures in untreated subjects. Moreover, treatment of asymptomatic infections, which are often associated with self agglutinating E. coli that have lost their O polysaccharide surface antigens, is frequently followed by a new E. coli infection with intact O surface antigens that are apparently responsible for acute symptoms. For this reason a sound argument can be made against treating an asymptomatic infection just to achieve low growth in the urine for a short period of time.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 223.

A 12-year-old girl with spina bifida and sigmoid cystoplasty has had multiple recurrent bladder stones. To reduce the risk of further bladder stones, the next step is:

A: potassium citrate.

B: antibiotic prophylaxis.

C: increase CIC frequency.

D: irrigate bladder daily.

E: conversion to a ileocystoplasty.

D: "irrigate bladder daily." is correct.

Bladder stone formation is a frequently encountered complication after enterocystoplasty. The most effective preventive measure appears to be regular bladder irrigation. There is no definitive data to support other measures such as frequent CIC, potassium citrate, or antibiotic suppression to decrease the incidence of bladder calculi. Conversion to ileocystoplasty will not significantly reduce the risk of bladder calculi.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3684.

Question 58 of 150
A 22-year-old man sustains a complete T8 spinal cord injury. Four weeks after the injury, the urodynamic profile is best characterized by:

A: detrusor overactivity, functional smooth sphincter, guarding reflex present.

B: detrusor overactivity, functional smooth sphincter, guarding reflex absent.

C: detrusor areflexia, functional smooth sphincter, guarding reflex absent.

D: detrusor areflexia, smooth sphincter dyssynergy, guarding reflex absent.

E: detrusor areflexia, functional smooth sphincter, guarding reflex present

C: "detrusor areflexia, functional smooth sphincter, guarding reflex absent." was the correct answer.

Spinal shock after spinal cord injury is the result of absent somatic reflex activity and suppression of somatic and autonomic activity below the level of the injury. It typically lasts six to twelve weeks but can last up to two years. At four weeks after injury, spinal shock continues and is manifested by bladder areflexia, a functional smooth sphincter and an absent guarding reflex (the ability of the striated sphincter to contract during bladder filling). After spinal shock, a T8 SCI patient is likely to have detrusor overactivity, smooth sphincter synergia (because T8 is below sympathetic outflow) and absent guarding reflex.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2021-2022.

Question 59 of 150

A 20-year-old man with cystinuria has recurrent calculi despite dietary therapy and hydration. The next step is:

A: acetohydroxamic acid.

B: Tham-E.

C: N-acetylcysteine.

D: D-penicillamine.

E: alpha-mercaptopropionylglycine.

E: "alpha-mercaptopropionylglycine." is correct.

Cystinuria should be managed initially with hydration and, perhaps, alkali therapy. The solubility of cystine does not significantly increase until the urinary pH reaches 7.5. At this pH, calcium phosphate precipitation may occur. Specific therapy would include use of either D-penicillamine or alpha-mercaptopropionylglycine (Thiola). D-penicillamine is less well-tolerated and approximately 50% of patients stop this therapy due to side effects. Tham-E is an alkalinizing agent used for irrigation. Acetohydroxamic acid is a urease inhibitor used for the management of infection stones. Captopril may be effective in reducing urinary cystine excretion in patients who have not responded to therapy with alpha-mercaptopropionylglycine and D-penicillamine or who are intolerant of these agents.

Rogers A, Kalakish S, Desai RA, Assimos DG: Management of cystinuria. UROL CLIN N AM 2007;34:347-362.

Moe OW, Pearle MS, Sakhaee K: Pharmacotherapy of urolithiasis: Evidence from clinical trials. KID INT 2011;79:385-392.

Question 60 of 150

A ten-year-old boy has a three-day history of painless, gross hematuria with a tea color appearance. He was diagnosed with streptococcal pharyngitis two weeks ago. Urinalysis shows > 100 RBC/hpf and trace proteinuria. The next step is:

A: repeat urinalysis in two weeks.

B: VCUG.

C: non-contrast CT scan.

D: cystoscopy.

E: renal biopsy.

A: "repeat urinalysis in two weeks." is correct.

This is a typical scenario of a pediatric postinfectious glomerulonephritis. It is often preceded by either pharyngeal or skin streptococcal infection between 7 to 21 days. The most common presentation is painless gross hematuria, with accompanying mild proteinuria, edema and hypertension. The C3 is low in 85-95%, and the streptozyme test is positive when preceding infection was a streptococcal infection. The prognosis is excellent, and the treatment is supportive. Gross hematuria resolves in several days, and proteinuria decreases during the first several weeks. In this clinical scenario where the etiology of the gross hematuria is evident, further diagnostic tests are not indicated. Renal biopsy should be considered in the presence of persistent hematuria and proteinuria.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3226.

Question 61 of 150
A 32-year-old man has left flank pain. Scout film and retrograde pyelogram are shown. The next step is:

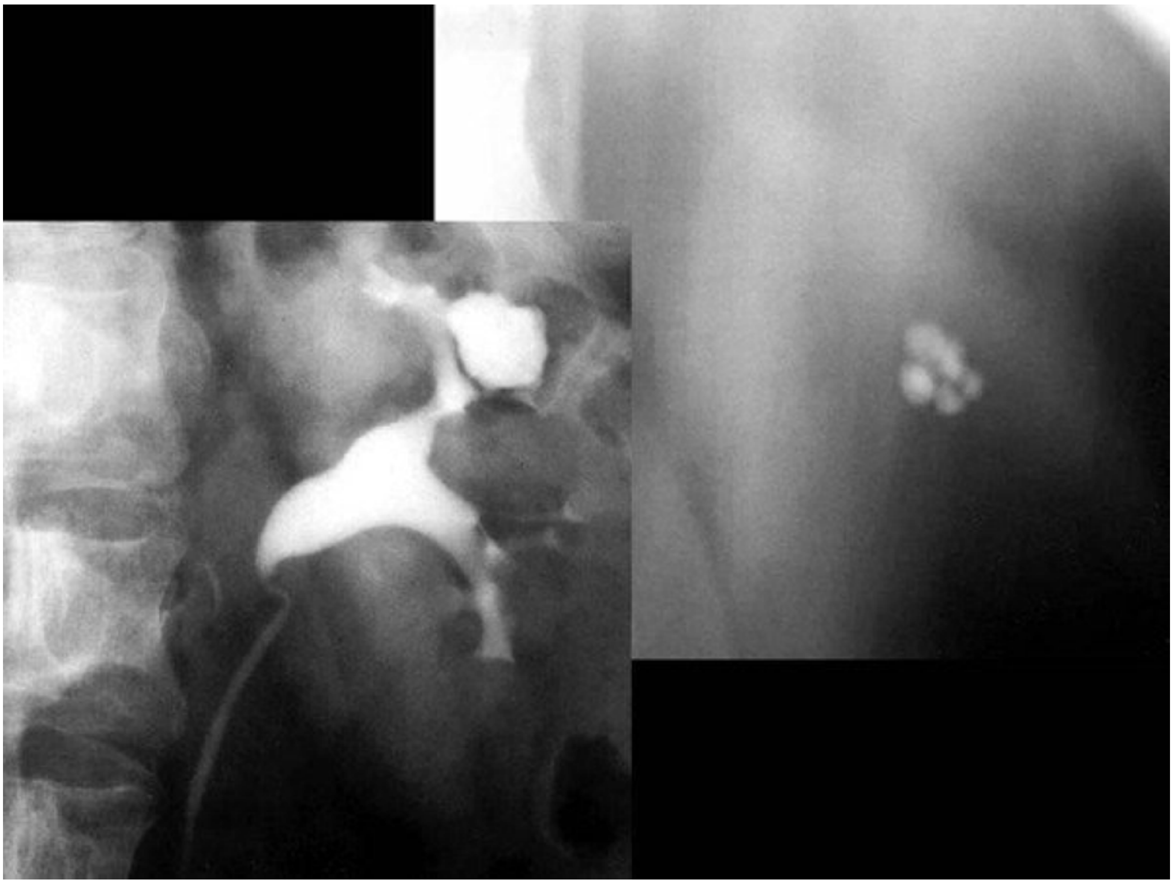
A: CT scan without contrast.

B: CT scan with I.V. contrast.

C: SWL.

D: PCNL.

E: laparoscopic calyceal diverticulectomy.



A: "CT scan without contrast." was the correct answer.

The image demonstrates an upper calyceal diverticulum. SWL is not recommended for the management of calyceal diverticulum with a narrow diverticular neck, as shown here, as fragments are unlikely to clear. PCNL and laparoscopy are appropriate alternatives for management of a calyceal diverticulum. However, before the choice of procedure can be made, it is important to determine whether the diverticulum is in an anterior vs. posterior location, as well as the relationship of the pleura and adjacent organs. PCNL would be utilized for a posterior diverticulum, while laparoscopy would be utilized for an anterior diverticulum. A CT scan without contrast will provide information for each of these variables. The CT scan will also determine the amount of parenchyma overlying the diverticulum. I.V. contrast would not be necessary as the retrograde pyelogram delineates the calculi within the diverticulum.

Canales B, Monga M: Surgical management of the calyceal diverticulum. CURR OPIN UROL 2003;13:255-260.

Question 62 of 150
Homologous natural cycle artificial insemination for couples with male factor infertility due to oligoasthenospermia is:

A: only effective if placed intracervically.

B: only effective if placed intrauterine.

C: no more effective than timed vaginal intercourse.

D: most effective in women with tubal disorders.

E: most useful with counts of < 10 million per ejaculate

C: "no more effective than timed vaginal intercourse." was the correct answer.

Natural cycle refers to allowing the woman to ovulate on her own without pharmaceutical induced stimulation of the development of multiple follicles through ovulation induction. In men with male factor infertility due to abnormal semen parameters, natural cycle intracervical or intrauterine insemination (IUI) is no better than timed vaginal intercourse. Those techniques are only useful in infertility caused by mechanical problems such as hypospadias, retrograde ejaculation, or impotence. Natural cycle IUI is useful in pure cervical factor infertility. Pregnancy rates with IUI are increased in couples with abnormal semen parameters if the woman undergoes ovulation induction. Clomiphene citrate and gonadotropins are commonly used medications for ovulation induction. Women with tubal abnormalities are best treated with in vitro fertilization since inseminated sperm still need to ascend through the fallopian tubes. The higher the total motile sperm count the better the pregnancy rate, therefore those with a sperm count > 10 million will fare better than those with < 10 million.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, p 651.

Question 63 of 150

A five-year-old boy with a history of PUV ablation is incontinent day and night. Renal ultrasound shows normal kidneys bilaterally. VCUG shows a mildly trabeculated bladder without VUR and a patent urethra. PVR is 10 ml. He has normal daily bowel movements. The urinalysis is normal, and he has not had any UTIs. The next step is:

A: timed voiding.

B: nocturnal bladder drainage.

C: urodynamic study.

D: oxybutynin.

E: desmopressin.

A: "timed voiding." is correct.

Voiding dysfunction and incontinence are common in boys with history of PUV. Over 80% will struggle with incontinence at age five. Nocturnal bladder drainage is usually indicated in the presence of high urinary output which can occur in boys with a history of PUV secondary to a concentrating defect. In such patients, significant hydroureteronephrosis is expected, which this patient does not have. Since he is not retaining urine after voiding, urodynamic test will likely demonstrate a pattern of bladder overactivity. However, it is appropriate to try conservative measures such as timed voiding prior to proceeding with more invasive testing such as urodynamics. Oxybutynin must be used with caution since a possible underlying myogenic dysfunction could lead to outright urinary retention. Desmopressin will not affect bladder dysfunction, which is the primary etiology of incontinence in boys with PUV.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3597.

Question 64 of 150
An 85-year-old woman in an assisted living facility with a history of asymptomatic bacteriuria has two days of urinary frequency, urgency, and incontinence. A urine culture reveals 10^5 CFU/ml pan sensitive E. coli. The next step is:

A: observation.

B: PVR, cystoscopy, and upper tract imaging.

C: single dose antibiotic therapy.

D: antibiotic therapy for seven days.

E: topical vaginal estrogen.

D: "antibiotic therapy for seven days." is correct.

New onset symptoms in a geriatric patient with previously diagnosed asymptomatic bacteruria warrant therapy. Generally, seven days of therapy is suggested. Single dose therapy is inadequate in this setting. There is no indication for catheterization as the patient is symptomatic and has a positive urine culture. Although this patient may need an evaluation for recurrent UTI's at some point, this evaluation can be delayed until she is adequately treated for her current symptomatic infection. Treating with estrogen alone in a settting of a symptomatic infection is insufficient. Initiating estrogen therapy in patients with recurrent symptomatic UTIs and atrophic vaginitis would be appropriate.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 295.

Question 65 of 150
A 35-year-old man with a history of left renal colic has a 5 mm calculus in the left renal pelvis. Two months later, he complains of a burning sensation in the distal urethra. He has a normal urinary stream, and there are no associated bladder symptoms. Based upon this clinical history, the calculus is most likely located in the:

A: upper ureter.

B: mid-ureter.

C: intramural ureter.

D: bladder.

E: urethra.

C: "intramural ureter." is correct.

The location and nature of pain and/or colic can often times determine the location of ureteral calculi. Classically, patients who report flank discomfort with radiation anteriorly most often have stones located in the proximal or mid-ureter. More commonly, patients with stones in the distal ureter will report irritative voiding symptoms or pain radiating to the penis, scrotum, or labia. With a normal urinary stream and no associated bladder symptoms, it is unlikely that this patient has a stone either in the urethra or bladder, respectively.

Dooley JA, Choi MJ: Acute renal colic, in Piccini & Nilsson: THE OSLER MEDICAL HANDBOOK, ed 2. Baltimore, Johns Hopkins Press, 2006, p 764.

Gupta M, Stoller ML: Acute and chronic renal pain, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott, Raven Publishers, 1996, pp 463-500.

Question 66 of 150
A five-year-old girl is evaluated for a febrile UTI. She has daytime urgency and rare wetting. She is dry at night. Physical examination is normal. A renal US is normal and a VCUG shows bilateral grade 2 VUR. Spina bifida occulta at L5 is noted on the scout film. The next steps are prophylactic antibiotics and:

A: spinal MRI scan.

B: urodynamics.

C: timed voiding.

D: oxybutynin.

E: endoscopic correction of reflux.

C: "timed voiding." was the correct answer.

Spina bifida occulta is often identified on spine films. In a child with a normal physical examination the chance of a spinal cord abnormality is very small. These children should be treated the same as other children with urgency and daytime wetting. The initial management is timed voiding and maintenance of a voiding diary. Since it is very likely that this VUR will resolve with behavioral modification surgical management including endoscopic treatment is not indicated. Urodynamics would be reserved for those children that are refractory to medical management. MRI scan of the spine is not indicated.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3604.

Question 67 of 150
A 48-year-old man has an AUA Symptom Score of 26 and a bother score of 4, recurrent UTIs, and significant bladder outlet obstruction documented on urodynamics. He wants to maintain fertility. He has failed medical therapy. The next step is:

A: CIC.

B: unilateral TUIP.

C: bilateral TUIP.

D: laser vaporization of the prostate.

E: TURP.

B: "unilateral TUIP." is correct.

A frequent complication of bladder outlet surgery for the treatment of obstruction is retrograde ejaculation. While this can be overcome with bladder harvested sperm most men who desire to maintain their fertility want normal antegrade ejaculation. The incidence of retrograde ejaculation is very high after TURP (up to 95%). TUIP has a much lower incidence of retrograde ejaculation (0% to 37%) and in many series is as effective as TURP. With a unilateral incision the incidence of retrograde ejaculation is less than 5%, and with two incisions, it is 15%. Laser vaporization has an associated risk of retrograde ejaculation that may be as high as TURP. While CIC would likely preserve antegrade ejaculation it is less desirable in a healthy young man.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2841-2842.

Question 68 of 150
The principal source of operator radiation exposure during endourologic procedures is:

A: the primary radiation beam.

B: radiation leakage from the x-ray tube.

C: radiation scatter from the patient.

D: radiation scatter from endoscopic instruments.

E: radiation scatter from the operating room walls and floor.

C: "radiation scatter from the patient." is correct.

Scattering of the primary beam from the patient is the primary source of radiation exposure to the operator during endourologic procedures. For this reason, maximizing the distance between the operator and the patient during fluoroscopy is a very effective method of reducing exposure. This explains why the fluoroscopy source is best placed under the patient to minimize radiation scatter to the operator.

Hellawell GO, Mutch SJ, Thevendran G, et al: Radiation exposure and the urologist: What are the risks? J UROL 2005;174:948-952.

Preminger GM, Fulgham PF, Curry T: Fluoroscopic safety for the urologist. AUA UPDATE SERIES 1986, vol 5, lesson 29, pp 1-7.

Question 69 of 150
The therapy with the highest success and lowest relapse rate for uncomplicated primary nocturnal enuresis is:

A: behavioral modification.

B: oxybutynin.

C: imipramine.

D: DDAVP.

E: nocturnal enuretic alarm.

E: "nocturnal enuretic alarm." was the correct answer.

To date, the etiology of primary nocturnal enuresis is poorly understood. Research has shown that many children will have a reduced functional bladder capacity and an element of overactive bladder contractions while sleeping. Most children will also have an element of elevated arousal threshold while sleeping. Many single and combination treatment modalities have been used including the urinary alarm, anticholinergics, DDAVP, and imipramine. However, the modality that has the highest success and the lowest relapse rate is the nocturnal enuretic alarm. The correct use of the alarm is commonly misunderstood. It is best used in conjunction with the parents' involvement in which they confirm that the child awakens when the alarm goes off since the child will often sleep through the alarm. The child then gets up and voids to completion. The alarm therapy may take up to three to four months to be successful. Parents and children need to be educated on its correct use and the labor intensive nature of this therapy. When used correctly, success rates have been reported to be 70-80% with low rates of relapse. All forms of pharmacotherapy have lower rates of success and much higher rates or relapse. Behavior modification using techniques such as timed voiding or retention training are not effective tools to address nocturnal enuresis.

Neveus T, Eggert P, Evans J, et al: International Children's Continence Society. Evaluation of and treatment for monosymptomatic enuresis: A standardization document from the International Children's Continence Society. J UROL 2010;183:441-447.

Question 70 of 150
A 45-year-old woman has new onset frequency, urgency, and urge incontinence. Urinalysis is negative. Residual urine is 90 ml. CMG reveals phasic detrusor overactivity throughout filling. During volitional voiding, there is simultaneous contraction of the external sphincter. The next step is:

A: referral for neurological evaluation.

B: cystoscopy and cytology.

C: antimuscarinic therapy.

D: intradetrusor onabotulinum toxin injections.

E: intradetrusor and intrasphincteric onabotulinum toxin injections.

A: "referral for neurological evaluation." was the correct answer.

This patient has detrusor external sphincter dyssynergia (DESD)based on the urodynamic evaluation. By definition, this implies the presence of a lesion between the pons and the lower spinal cord. Multiple sclerosis needs to be strongly considered given this patient's demographic information and urodynamic findings. Approximately 5-10% of patients with MS present initially with urologic complaints. Cystoscopy is not indicated, and bladder cancer is not likely in the age demographic and with a negative urinalysis. Antimuscarinic therapy may ultimately be helpful, though the residual would need to be monitored closely in the presence of DESD. Patients should be evaluated for possible neurological process due specifically to the finding of DESD. Onabotulinum toxin injections should not be utilized until a definitive diagnosis has been made.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2019-2020.

Question 71 of 150
A 60-year-old man sustains an avulsion injury of the scrotum. Ninety percent of the scrotal skin is lost. The next step after one week of debridement and local wound care is:

A: rotational thigh skin flap.

B: full thickness skin graft.

C: placement of testicles in thigh pouches.

D: split thickness skin graft.

E: scrotal skin mobilization and direct closure

D: "split thickness skin graft." was the correct answer.

Scrotal reconstruction can be performed in many ways depending on the characteristics of the patient, mechanism of injury, and degree of skin loss. Limited skin loss can be managed with mobilization of remaining scrotal skin and direct closure as the scrotal skin is very pliable and will expand to cover relatively large defects. In this case a 90% loss makes this option impossible. More extensive skin loss can be managed with skin grafts, local flaps or tissue expanders. Rotational flaps provide a sensate and hair bearing scrotum but require more extensive dissection and have been generally supplanted by skin grafting. Full thickness skin grafts are reserved for selected cases where small surface areas are required and contraction is especially problematic, but not useful in this case due to 90% scrotal loss. Thigh pouches are acceptable but generally temporizing measures except in the most debilitated patients. Reconstruction is most easily accomplished with the use of split-thickness skin grafts which can cover large areas of skin loss and provide for complete scrotal reconstruction. Advantages of split thickness skin grafts include their high success rate and the fact that, when healed, they mimic the rugate appearance of the normal scrotal skin. Disadvantages include lack of hair and the fact that they may retract. Retraction can be minimized by avoiding expansion of the graft (i.e. 2:1 or 3:1 meshing). Skin grafts should never be placed on an acute injury due to bacterial contamination that will usually result in graft loss. Delayed grafting five to seven days post-injury in the presence of a clean graft bed will result in increased graft take.

Gomez R: Genital skin loss. PROB IN UROL 1994;8:290-301.

Question 72 of 150
A seven-year-old boy is a restrained front seat passenger in an MVC in which air bag deployment is noted. In the ER, he has right flank pain. Physical exam reveals mild right sided abdominal and CVA tenderness. No hypotension was noted in the field or in the ER. Hgb is 12.5 and urinalysis shows 25 RBC/hpf. The next step is:

A: observation.

B: serial CBC and urinalysis.

C: abdominal ultrasound.

D: abdominal CT scan with contrast.

E: cystogram.

D: "abdominal CT scan with contrast." is correct.

The kidneys in children, as compared to those in adults are believed to be more susceptible to trauma for numerous reasons including a more pliable thoracic cage, weaker abdominal musculature, less perirenal fat, and lower position in the abdomen. Although there has been past controversy regarding the indications for imaging in children with blunt renal trauma, most studies now suggest that children should be radiographically evaluated in a similar fashion to adults. Thus, they should be imaged when one of the following four criteria are present: 1. A significant deceleration or high-velocity injury such as a high speed MVC, or fall from more than 15 feet, or significant blow to the abdomen, 2. Significant trauma that has resulted in fractures of the surrounding rib cage or spine, 3. Gross hematuria, or 4. Microscopic hematuria (< 50 RBC/hpf) associated with shock (systolic blood pressure less than 90 mm Hg). CT scans are the best form of imaging. In this child, the degree of microscopic hematuria and the absence of shock does not fulfill the criteria for imaging. However, the mechanism of injury where airbag deployment was noted suggests a significant deceleration injury which mandates the need for imaging; thus a CT scan should be performed. The mechanism of injury is probably the most important factor in helping to determine whether imaging is necessary in borderline cases.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p 3930.

Question 73 of 150
A 47-year-old woman is undergoing percutaneous test stimulation of a lead for sacral neuromodulation. Plantar flexion and rotation of the foot is noted along with sensation in the buttock. The next step is to:

A: maintain lead and discharge home.

B: place the lead one foramen higher and re-test.

C: place the lead one foramen lower and re-test.

D: advance the lead deeper into the foramen and re-test.

E: withdraw the lead to a more superficial location in the foramen and re-test.

C: "place the lead one foramen lower and re-test." was the correct answer.

The motor and sensory responses noted are consistent with incorrect placement of the lead into the S2 foramen. The lead should be removed, replaced one foramen lower (S3), and re-tested. Placing more deep or shallow will not result in appropriate stimulation. Correct placement of the lead into the S3 foramen will result in a Bellows reflex, a contraction of the perineal area, and plantar flexion of the ipsilateral great toe.

Vasavada SP, Rackley RR: Electrical stimulation for storage and emptying disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 64, pp 2148-2149.

Question 74 of 150
A 65-year-old man has lethargy, malaise, and a markedly diminished urinary stream. After urethral catheterization, he experiences a postobstructive diuresis that is managed by appropriate fluid replacement. Urine output is 1,500 ml daily. Serum creatinine and BUN are 6.8 mg/dl and 95 mg/dl respectively, and unchanged three days later. The next step is:

A: continued observation.

B: retrograde pyelography.

C: dialysis.

D: renal ultrasound.

E: increased fluid replacement.

D: "renal ultrasound." is correct.

In patients with urinary obstruction and impaired renal function, postobstructive diuresis is not unusual. Typically, urinary catheter drainage produces improvement in the blood levels of creatinine, BUN, and electrolytes to normal levels. If significant improvement does not occur, consideration must be given to inadequate drainage of the upper urinary tract because the bladder is poorly drained (poorly functioning catheter) or because of supravesical obstruction. The latter should be evaluated using renal ultrasound which is less invasive than retrograde pyelography. Since creatinine and BUN have not improved, continued observation is inappropriate until upper tract obstruction is ruled out. No data to suggest the need for immediate dialysis in this patient is provided. There is no evidence the patient is dehydrated, therefore increased fluid replacement is not indicated.

Question 75 of 150
A two-year-old boy with hemihypertrophy should undergo:

A: twice yearly physical exam of abdomen.

B: renal ultrasound every three months.

C: twice yearly urinalysis and urinary metanephrine level.

D: annual abdominal CT scan.

E: abdominal MRI scan every six months.

B: "renal ultrasound every three months." is correct.

Children with hemihypertrophy are at risk for the development of Wilms' tumor due to alterations in the WTR1 and WTR2 genes. The best screening method to allow early detection of a renal mass, without untoward exposure to radiation or excessive cost, is ultrasound every three months through early childhood. Twice-yearly urinalysis and urinary metanephrine are not indicated in this patient, because they are not predisposed to pheochromocytomas.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Question 76 of 150
Autoinflation of an inflatable penile prosthesis is best prevented by:

A: use of a smaller reservoir.

B: postoperative partial cylinder inflation.

C: intraperitoneal reservoir placement.

D: reservoir placement in subinguinal canal.

E: use of a reservoir with a lockout valve.

E: "use of a reservoir with a lockout valve." is correct.

Autoinflation occurs when the inflatable penile prosthesis partially inflates with physical activity. It can be minimized by placing the reservoir in the prevesical (retropubic) space performing the back pressure test with reservoirs that do not have a lockout valve or by using a reservoir with a lock-out valve, is now available as an option. The cylinders should also be kept deflated during healing after surgery and when the prosthesis is not being used. Initial experience with this device suggests that it reduces the incidence of this complication.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, pp 795-797.

Question 77 of 150

A 45-year-old man undergoes bilateral end to side vasoepididymostomy. Semen analysis six months later demonstrates azoospermia. The next step is:

A: observation.

B: measurement of FSH.

C: clomiphene citrate therapy.

D: TRUS.

E: testicular sperm retrieval.

A: "observation." is correct.

The delayed appearance of sperm in the ejaculate of men undergoing vasoepididymostomy (VE) is common. The mean delay in one reported series was six months (range, 3 to 15 months). The ultimate mean sperm count and motility were found to be similar to subjects with sperm present in the initial semen analysis in this study. Therefore, observation would be the best approach in this situation. The epididymal fluid would have been examined for sperm at the time of VE and the procedure only performed if sperm were identified. Determination of the FSH would not be useful since FSH should be normal in patients with obstructive azoospermia. Clomiphene citrate will raise FSH, LH, and testosterone but not correct the obstruction. TRUS is indicated for ejaculatory duct, not epididymal obstruction. Testicular sperm retrieval is not indicated this early after surgery.

Practice Committee of the American Society for Reproductive Medicine. Vasectomy Reversal. FERT & STERIL 2008;90:80.

Jarow JP, Sigman, M, Buch JP, Oates RD: Delayed appearance of sperm after end-to-side vasoepididymostomy. J UROL 1995;153:1156.

Question 78 of 150

A four-year-old girl voids normally but is continuously wet. A renal ultrasound shows normal appearing kidneys bilaterally. The next step is:

A: MAG-3 renal scan.

B: VCUG.

C: MRI scan

D: cystoscopy and vaginoscopy.

E: retrograde pyelogram.

C: "MRI scan" is correct.

The clinical scenario of dribbling despite normal voiding creates suspicion of an ectopic ureter. Often the ectopic upper pole moiety of the duplex kidney is very small and not easily identified on ultrasound. In these cases an MRI scan or MR urogram are the best imaging tests to localize the difficult to identify small, dysplastic upper poles and their ureters. MR urogram is not always required since the T2-weighted images of a standard MRI are particularly suited for finding and defining fluid-filled structures like an ectopic ureter. Sagittal imaging may demonstrate the exact termination of the ectopic ureter. DMSA scan is most useful in the identification of small ectopic kidneys but is unlikely to be useful when the renal US is normal. If the moiety is small, a MAG-3 renal scan and IVP will appear normal because the upper pole has no function and the lower pole will not be deviated. VCUG will sometimes show VUR into an ectopic ureter depending on the location of the orifice. A retrograde pyelogram can identify the ectopic orifice but the orifice is often difficult to identify cystoscopically and is not as sensitive as an MRI scan.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, pp 3392-3393.

Question 79 of 150
Urodynamic stress urinary incontinence is defined as urinary leakage that occurs:

A: with a cough-induced detrusor contraction.

B: during a rise in intraabdominal pressure in the absence of a detrusor contraction.

C: with a rise in detrusor pressure.

D: involuntarily per urethra during urodynamic testing.

E: in the absence of increased in intraabdominal pressure and a voluntary detrusor contraction.

B: "during a rise in intraabdominal pressure in the absence of a detrusor contraction." is correct.

Urodynamic stress urinary incontinence is defined as the presence of urinary leakage during a rise in intraabdominal pressure in the absence of a detrusor contraction. The presence of leakage with cough and or sneeze, defines the symptom of SUI. Leakage in the absence of a rise in intraabdominal pressure with a rise in detrusor pressure is the detrusor leak point pressure, most commonly encountered in neurogenic patients. This represents the relationship between bladder storage and outlet resistance.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, p 2005.

Abrams P, Cardozo L, Fall M, et al: The standardization of terminology of lower urinary tract function: Report from the Standardization Committee of the International Continence Society. NEUROUROL URODYNAM 2002;21:167-178.

Continue

Question 80 of 150
A 64-year-old man has painless right testicular swelling of three months duration. Urinalysis is normal, and testicular ultrasound reveals an enlarged right testis with multiple hypoechoic lesions. The most likely diagnosis is:

A: lymphoma.

B: chronic lymphocytic leukemia.

C: spermatocytic seminoma.

D: teratocarcinoma.

E: embryonal cell carcinoma.

A: "lymphoma." was the correct answer.

Lymphoma accounts for about 5% of all testicular tumors. It is the most common of all testis tumors over the age of 50. The median age of occurrence is approximately 60 years. Lymphoma is the most common secondary neoplasm of the testis. Microscopically, all varieties of reticuloendothelial neoplasms, including Hodgkin's disease, have been described in the testis. The vast majority, however, are diffuse; of these, most are histiocytic. Of germ cell tumors in men over 50, seminoma is most common. However, in the presence of multiple testicular lesions in a 64-year-old man, lymphoma is the most likely diagnosis.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 930-931.

Question 81 of 150
In a newborn with penoscrotal hypospadias and nonpalpable testes, the most important test is:

A: serum for 17-hydroxyprogesterone.

B: determination of testosterone:dihydrotestosterone ratio.

C: hCG stimulation test.

D: pelvic ultrasound.

E: genitogram.

A: "serum for 17-hydroxyprogesterone." was the correct answer.

While this child may be male, consideration of the 46XX disorder of sex development secondary to CAH must be entertained. Laboratory evaluations to assess enzymatic adrenal function is the primary concern. FISH evaluation for the presence of a Y chromosome and chromosome analysis should be done as soon as possible. Many of the patients with CAH will be deficient in mineralocorticoids in addition to corticosteroids. Without prompt diagnosis and treatment life-threatening shock may develop due to dehydration and salt loss. All of the other listed options are reasonable tests for the evaluation of disorders of sex development, but will only be performed after CAH is ruled out.

Question 82 of 150
A 28-year-old woman has significantly decreased libido six months after starting oral contraceptive pills. The most likely cause of her decreased sexual desire is:

A: reduced serum estradiol.

B: reduced serum progesterone.

C: reduced serum testosterone.

D: decreased sex hormone binding globulin.

E: increased serum prolactin.

C: "reduced serum testosterone." is correct.

Oral contraceptive pills (OCPs) significantly increase the production and release of sex hormone binding globulin (SHBG) by the liver. The increased SHBG subsequently lowers serum free testosterone by irreversible binding. Low levels of circulating free testosterone can cause a significant decrease in sexual desire/libido. While estradiol may decrease with OCPs, the effect is less striking on libido than the effect of a lower serum testosterone. Progesterone levels may actually increase with some OCPs.

Question 83 of 150
The best predictor of long-term recurrence-free status in a patient with non-invasive bladder cancer is:

A: tumor size.

B: Rb mutation.

C: tetraploid flow cytometry.

D: negative random biopsies.

E: negative cystoscopy three months after a TURBT.

E: "negative cystoscopy three months after a TURBT." is correct.

Rb mutations (Retinoblastoma Protein) are found in approximately 30% of bladder tumors and are correlated with a higher stage disease at time of diagnosis and decreased patient survival. Flow cytometry has not been found to be of more clinical value than conventional cytology in determining tumor recurrence. Low grade tumors are usually diploid, bladder tumors with triploid to tetraploid will be found to have unfavorable pathologic characteristics and a poorer prognosis. Interesting patients with pure tetraploid expression have a more favorable prognosis than those of patients with triploid to tetraploid tumors but worse than diploid tumors. Both tumor size and negative random biopsies have a dramatic impact on progression rate but less on recurrence rate. In patients with a well or moderated differentiated non-invasive bladder cancer, the factor which best predicts the absence of tumor recurrence is a post TURBT negative cystoscopy at three months. If no tumor is present at three months, there is an 80% chance of no further tumor recurrence.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2463

Question 84 of 150
Urinary concentration is primarily the result of which characteristic of the kidney:

A: hypertonic medullary interstitial fluid.

B: absence of ADH.

C: hypotonic medullary interstitial fluid.

D: high levels of ADH.

E: hypertonic proximal tubular fluid.

A: "hypertonic medullary interstitial fluid." is correct.

Although 65% of sodium chloride and water are reabsorbed in the proximal tubule, the intraluminal fluid remains iso-osmotic. Urinary concentration takes place as the tubular fluid flows through the medullary collecting ducts. The medullary interstitial hyperosmolarity in the presence of normal plasma concentrations of ADH causes water to diffuse out of medullary collecting ducts into the interstitial fluid and then into the medullary blood vessels. High ADH levels produce a more concentrated urine and low levels produce a more dilute urine.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1146-1154.

Question 85 of 150
A 60-year-old healthy woman with recurrent UTIs has free air in the bladder and a thickened bladder wall adjacent to a loop of thickened colon see on CT scan. Cystoscopy demonstrates erythema in the bladder wall with no clear fistula. The next step is:

A: antibiotic prophylaxis.

B: high pressure cystogram.

C: CT scan with small bowel follow through.

D: MRI scan.

E: general surgery consult/exploratory laparotomy.

E: "general surgery consult/exploratory laparotomy." was the correct answer.

Cross-sectional imaging, especially CT scan, has become the imaging modality of choice to demonstrate a vesicoenteric fistula. CT or MRI scans may localize the fistula track as well as the involved segment of bowel. The triad of findings on CT that are suggestive of colovesical fistula consists of (1) bladder wall thickening adjacent to a loop of thickened colon, (2) air in the bladder (in the absence of previous lower urinary tract manipulation), and (3) presence of colonic diverticula. Cystoscopy has the highest yield in identifying a potential lesion, with some type of abnormality noted on endoscopic examination in more than 90% of cases. However, the findings on cystoscopy are often nonspecific and include localized erythema and papillary or bullous change; a definitive diagnosis by cystoscopy can be made in only 35% to 46% of cases. This patient has clear evidence of a vesicoenteric fistula and further diagnostic studies are not indicated. Should she be a poor surgical risk, long-term antibiotics could be used. Definitive colonic resection of presumed diverticulosis and repair of fistula should occur with exploratory laparotomy. General surgery may wish to proceed with colonoscopy/barium enema to evaluate the extent of the affected segment or rule-out malignancy.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2351-2352.

Question 86 of 150
A 26-year-old man undergoes a left radical orchiectomy for seminoma. CT scan reveals two 3 cm interaortocaval nodes. Two weeks after orchiectomy, the AFP is unchanged at 25 IU/ml and beta-hCG is 8 mIU/ml. The next step is:

A: infradiaphragmatic XRT.

B: cisplatin-based chemotherapy.

C: infradiaphragmatic plus supradiaphragmatic XRT.

D: RPLND.

E: RPLND plus cisplatin-based chemotherapy.

B: "cisplatin-based chemotherapy." was the correct answer.

Although the histological diagnosis is seminoma, the elevated alpha-fetoprotein is indicative of a non-seminomatous testis tumor, and the patient should be managed as such. The orchiectomy specimen should be re-evaluated in detail to look for an additional germ cell elements. Given the findings on the CT scan, this patient has a clinical Stage IIB tumor. Based on the data available in the literature, it appears these patients are best served with initial chemotherapy rather than RPLND following the inguinal orchiectomy. The most widely utilized regimen today is three cycles of bleomycin, etoposide (VP-16), and cisplatin. If residual nodal tissue is evident after the multidrug chemotherapy, surgical excision is recommended. With the evolution of effective multi-drug regimens, radiation therapy is no longer utilized in the management of Stage IIB non-seminomatous testis tumors.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 896-897

Question 87 of 150
A four-year-old uncircumcised boy has a two-week history of foreskin swelling with urination. The retained urine under the foreskin drains slowly following completion of voiding. There is no dysuria or hematuria. Physical exam reveals mild erythema of the distal foreskin and a phimotic ring. The meatus cannot be visualized. The next step is:

A: observation.

B: sitz baths.

C: topical steroid ointment.

D: dorsal slit.

E: circumcision.

C: "topical steroid ointment." was the correct answer.

The patient has pathologic phimosis that does not allow adequate urinary drainage. Observation is only appropriate in the setting of physiologic phimosis in which the foreskin is not retractable due to normal physiologic adhesions, as opposed to pathologic phimosis, which is development of a dense fibrotic ring from chronic inflammation. Treatment of pathologic phimosis with a topical steroid ointment (0.05% betamethasone) is effective in up to 90% of cases in relieving the phimosis and allowing adequate retraction of the foreskin. If the patient had more acute problems such as severe balanitis or more obstructive voiding symptoms then surgical intervention with a dorsal slit or circumcision may be appropriate. Sitz baths alone are unlikely to rectify the problem.

Orsola A, Caffaratti J, Garat JM: Conservative treatment of phimosis in children using a topical steroid. UROL 2000;56:307-310.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, p 3238.

Question 88 of 150
A 65-year-old man has been using 20 mg of tadalafil (Cialis^{TM}) as needed for treatment of erectile dysfunction. His primary care provider starts him on doxazosin for hypertension. His treatment of erectile dysfunction should include:

A: continue tadalafil 20 mg as needed.

B: decrease tadalafil to 10 mg as needed.

C: start tadalafil for once daily use at 5 mg/day.

D: stop tadalafil.

E: switch to intracorporal alprostadil.

B: "decrease tadalafil to 10 mg as needed." was the correct answer.

Concomitant use of alpha-blockers and PDE-5 inhibitors can cause hypotension. When tadalafil is coadministered with an alpha-blocker, patients should be stable on alpha-blocker therapy prior to initiating treatment with tadalafil, and tadalafil should be initiated at the lowest recommended dose. Conversely, when starting an alpha-blocker the lowest dose of either agent should be used and they should not be taken at the same time. There is no need to stop tadalafil in this patient or switch to intracorporal injections if he has been successful on oral therapy. Of all the choices, decreasing to the lowest effective dose of tadalafil (10 mg for use as needed, or 2.5 mg/day for once daily use) would be recommended for this man.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, pp 773-777.

Continue

Question 89 of 150
A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Her replacement therapy consists of cortisone and fluorocortisone. Three years later, she complains of visual disturbances and has skin hyperpigmentation. The most likely explanation is:

A: Addison's disease.

B: pituitary adenoma.

C: excessive cortisone replacement.

D: excessive ACTH production.

E: ectopic melanocyte-stimulating hormone secretion.

B: "pituitary adenoma." was the correct answer.

Approximately 10-20% of patients who have had a bilateral adrenalectomy for Cushing's Syndrome later develop pituitary tumors that are almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation (due to melanocyte stimulating hormone release by corticotropic releasing hormone), headaches, and visual disturbances are due to the expanding adenoma that is diagnosed by MRI or CT scans of the sella turcica. Pituitary basophilic adenoma that was initially postulated by Cushing as causing the syndrome named for him has, in fact, rarely been a factor. Addison's disease describes primary adrenal insufficiency not as a result of bilateral adrenalectomy. Excessive cortisone replacement would result in a Cushingoid appearance (purple striae, buffalo hump, central obesity). Excessive ACTH production is not the end result of bilateral adrenalectomy. Although, increased skin pigmentation could be a result of ectopic melanocyte stimulating hormone secretion the other symptoms would not.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Question 90 of 150
Prolapse of a vesicostomy is best avoided by:

A: making the stoma no bigger than 12 Fr.

B: resecting excess bladder wall tissue.

C: placing the stoma at the bladder dome.

D: circumferential suturing of bladder to rectus fascia.

E: placing a stoma midway between symphysis pubis and umbilicus.

C: "placing the stoma at the bladder dome." was the correct answer.

When the bladder dome is brought out for the vesicostomy, it effectively immobilizes the posterior wall of the bladder, preventing its prolapse out the vesicostomy stoma. The bladder dome can be reliably identified by seeing and dividing the urachal remnant. Resecting bladder tissue is contraindicated to facilitate future undiversion. The other possibilities will not prevent prolapse if the vesicostomy is performed on the anterior wall of the bladder.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia,

Question 91 of 150
Hypercoagulability in patients with ESRD secondary to nephrotic syndrome is due to:

A: hypohomocystinenemia.

B: urinary loss of antithrombin III.

C: retention of protein S.

D: retention of protein C.

E: decreased antiphospholipid antibodies.

B: "urinary loss of antithrombin III." is correct.

A hypercoagulable state can occur in the nephrotic syndrome with urinary loss of the natural anticoagulants: antithrombin III, protein C, and protein S. Hyperhomocysteinemia is common in ESRD, and has been associated with thrombophilia. Antiphospholipid antibodies are found in 30% to 50% of patients with systemic lupus erythematosus, a cause of ESRD. Loss of antithrombin III and increased antiphospholipid antibodies increase the risk of thrombosis of renal allografts, dialysis access devices, and post-operative thromboembolic events. Thus, anticoagulation should be considered in these patients.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1299.

Question 92 of 150

The most frequent complications associated with the use of mitomycin C for intravesical therapy are:

A: chemical cystitis and rash.

B: myelosuppression and rash.

C: flu-like symptoms and myelosuppression.

D: contracted bladder and chemical cystitis.

E: myelosuppression and chemical cystitis.

A: "chemical cystitis and rash." was the correct answer.

Rash occurs in 9% of patients receiving mitomycin C instillations, and may represent a contact dermatitis. Chemical cystitis has been reported in 6-41% of patients managed with this agent. The molecular weight of mitomycin C is so high that little is absorbed and myelosuppression is rare. A contracted bladder is also rare after mitomycin C treatment. Flu-like symptoms, which are commonly seen after BCG and interferon therapy, are uncommon after intravesical chemotherapy.

Taneja SS, Chan S: Complications of intravesical therapy, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY. PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Company, 2001, chap 8, p 87.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2459..

Question 93 of 150
A one-year-old boy with a familial bleeding disorder receives I.V. DDAVP prior to a hypospadias repair. Appropriate fluid management would include:

A: 1/4 NS intraoperatively; encourage p.o. fluids postoperatively.

B: 1/4 NS intraoperatively; continue I.V. fluids for four hours postoperatively.

C: 1/4 NS intraoperatively; drink to thirst postoperatively.

D: NS intraoperatively; encourage p.o. fluids postoperatively.

E: NS intraoperatively; drink to thirst postoperatively.

E: "NS intraoperatively; drink to thirst postoperatively." is correct.

DDAVP causes retention of free water. Intravenous fluids should be iso-osmotic, and oral fluids should not be pushed, but taken according to thirst. Dangerous hyponatremia can otherwise be induced by the administration of hypoosmotic fluids during surgery, or by overencouraging oral fluids postoperatively.

Robertson, JM: Pediatric fluid management, in Docimo, SG, Canning, DA, Khoury, AE (eds): THE KELALIS-KING-BELMAN TEXTBOOK OF CLINICAL PEDIATRIC UROLOGY. London, Informa Healthcare, 2007, p 223.

Question 94 of 150
A 66-year-old man had a radical prostatectomy six years ago for localized prostate cancer. He has had no evidence of recurrence and an undetectable PSA. He now has loss of libido, declining

muscle mass, lethargy, and erectile dysfunction. His serum testosterone is 160 ng/dl, and his LH and prolactin levels are normal. The next step is:

A: explain that testosterone is contraindicated.

B: delay testosterone treatment until he is disease free for ten years.

C: start testosterone after a thorough discussion.

D: start yohimbine.

E: start PDE5 inhibitor.

C: "start testosterone after a thorough discussion." is correct.

Men successfully treated for prostate cancer and suffering from symptomatic hypogonadism may become candidates for androgen therapy, if there is no evidence of residual cancer after a prudent interval. The risks and benefits must be clearly understood by the patient. Close follow-up is required. Phosphodiesterase inhibitors may be used for first-line therapy of erectile dysfunction, but do not adequately address systemic manifestations of hypogonadism. In hypogonadal men, combined treatment has been reported. Yohimbine is not recommended for the treatment of erectile dysfunction.

Morales A, Morley J, Heaton JPW: Androgen deficiency in the aging male, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 27, p 861.

Montague DK, Jarow J, Broderick GA, et al: The management of erectile dysfunction: An update. MANAGEMENT OF ERECTILE DYSFUNCTION GUIDELINE. American Urological Association Education and Research, Inc, 2005. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=ed

Question 95 of 150

A 79-year-old man with congestive heart failure has gross hematuria. CT urogram reveals a 6 mm distal right ureteral filling defect. Right ureteral washing for cytology are positive for high grade carcinoma. Serum creatinine of 1.9 mg/dl is stable. The next step is:

A: retrograde pyelogram and ureteral washing in four months.

B: ureteral stent placement and intravesical BCG.

C: ureteroscopic biopsy and laser ablation.

D: distal ureterectomy and reimplantation.

E: nephroureterectomy.

C: "ureteroscopic biopsy and laser ablation." was the correct answer.

This patient is elderly, has compromised medical and renal status and probably has a distal ureteral urothelial carcinoma. While optimal therapy in a younger, healthier patient would be distal ureterectomy and reimplantation, this patient would be well-served with endoscopic management. In the setting of subcentimeter lesions such as this one initial ureteroscopic ablation with followup ureteroscopy and surveillance is likely to be associated with equivalent control rates to distal ureterectomy and would avoid major abdominal surgery in this patient with heart failure.

Question 96 of 150

A 25 cm segment of ileum is isolated for bladder augmentation and reconfigured into a "U" shape. A sagittal incision of the bladder is made. The most dependent portion of the intestinal patch will not reach the apex of the incision by the bladder neck even after the mesentery is aggressively mobilized. The next step is:

A: reconfigure the intestine into an "S" shape.

B: incise both sides of the peritoneum overlying the mesentery.

C: ligate branching vessels of the vascular arcade.

D: partially close the anterior wall of the bladder.

E: isolate an additional intestinal segment for composite augmentation.

B: "incise both sides of the peritoneum overlying the mesentery." was the correct answer.

When an intestinal patch will not reach the deep pelvis in a tension free manner, the first step should always be aggressive mobilization of the root of the mesentery. When this fails to achieve the desired length, transverse incisions of the peritoneum should be performed on both sides of the mesentery in a step wise fashion. This can result in significant lengthening of the mesentery. Ligation of vessels should only be done as a last resort to avoid vascular compromise to the bowel segment. Psoas hitch has also been described, but will not help move the apex of the sagittal incision by the bladder neck which is fixed. Reconfiguration will not gain more length and closure of the anterior bladder wall will risk the development of an hourglass deformity.

Levine LA: Stepladder incision technique for lengthening of bowel mesentery. J UROL 1992;148:351-352.

Baig MK, Weiss EG, Nogueras JJ, Wexner SD: Lengthening of small bowel mesentery: Stepladder incision technique. AM J SUR 2006;191:715-717.

Continue

Question 97 of 150
A 67-year-old man develops erythema and mild tenderness in the scrotum six weeks following placement of a three-piece inflatable penile prosthesis. He has no tenderness or erythema in the penile shaft or suprapubic area. The best treatment is:

A: oral antibiotic therapy for six weeks.

B: I.V. antibiotic therapy for six weeks.

C: removal and replacement of the scrotal pump.

D: removal of the entire device and replacement in six months.

E: removal of the device with washout and immediate replacement.

E: "removal of the device with washout and immediate replacement." was the correct answer.

This patient clearly demonstrates an early prosthetic infection manifested around the scrotal pump. Treatment of a prosthetic infection with antibiotics usually results in clinical improvement but is almost never the definitive treatment and the infection will recur. This is due to microorganisms within a biofilm that is adherent to the device and the inability to sterilize the device or the biofilm once these organisms are present. When a prosthetic infection is present, all components of the prosthesis should be removed. If they are removed a new device should be replaced as soon as is feasible (within six to eight weeks) to decrease the amount of fibrosis and significant penile shortening which will occur. Mulcahy introduced the concept of immediate prosthesis salvage for infection which has been able to salvage as many as 85% of these patients and prevent penile shortening. His protocol involves removal of all prosthetic components followed by irrigation with seven antibacterial solutions. Others have reported on using different numbers and types of solutions. Mechanical irrigation and removal of the biofilm appears to be the key principle of this technique. A new device is implanted immediately after irrigation, and the patient is prescribed antibiotics. When salvage procedures are successful, they maintain penile size and correct the problem with only one operation.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, p 801.

Question 98 of 150
When performing urinary diversion, the gastrointestinal segment associated with the highest potassium loss is:

A: stomach.

B: jejunum.

C: proximal ileum.

D: distal ileum.

E: colon.

E: "colon." is correct.

It is important to know the electrolyte content of the fluid from the various bowel segments in order to replace abnormal fluid losses from these segments. Serum electrolyte complications and the type of electrolyte abnormalities that occur are different, depending on the segment of bowel used. If stomach is employed, a hypochloremic metabolic alkalosis may occur. If jejunum is the segment used, hyponatremia, hyperkalemia, and metabolic acidosis occur. If the ileum or colon is used, a hyperchloremic metabolic acidosis ensues. Hypokalemia and total-body depletion of potassium may occur in patients with urinary intestinal diversion. This is more common in patients with ureterosigmoidostomies than it is in patients who have other types of urinary intestinal diversion. The use of ureterosigmoidostomies has decreased significantly. It has been shown that ileal segments exposed to high concentrations of potassium in the urine reabsorb some of the potassium, whereas colon is less likely to do so. Thus, those with ileum interposed in the urinary tract likely blunt the potassium loss by the kidney, whereas those with colon do not, thus explaining why patients with ureterosigmoidostomies and ureterocolonic diversions are more likely to have total-body potassium depletion.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2570-2573.

Question 99 of 150
A seven-year-old boy has recurring abdominal pain one to two times per month. Episodes consist of left flank discomfort, nausea, and vomiting. On ultrasound, there is mild left hydronephrosis. A MAG-3 Lasix renal scan shows 50% differential function and a T1/2 of eight minutes bilaterally. Two urinalyses demonstrate 2-5 RBCs/hpf. The test most likely to yield the diagnosis is:

A: non-contrast CT scan.

B: VCUG.

C: MR urogram.

D: ultrasound of kidneys during pain.

E: left antegrade renal perfusion study (Whitaker).

D: "ultrasound of kidneys during pain." was the correct answer.

The history suggests intermittent UPJ obstruction and the associated "Dietl's crisis." Dietl's crisis is intermittent abdominal pain associated with nausea and vomiting following an episode of high fluid intake. Although a renal scan with Lasix is used in an attempt to prompt the crisis, it may on occasion be falsely negative. In these patients, it is best to repeat a renal ultrasound at the time of pain and compare this to a baseline renal ultrasound taken when the patient was asymptomatic. If increased hydronephrosis at the time of symptoms is present, it is diagnostic and the pyeloplasty will be curative. Placement of a double J stent in this patient population is not usually helpful since the discomfort of the stent will usually preclude its diagnostic usefulness. A Whitaker test is invasive and usually reserved to evaluate for the presence of obstruction in a hydronephrotic kidney with poor renal function, i.e., kidney < 25% differential function, or in a patient where the serum creatinine two times elevated for age or creatinine of greater than or equal to 2 mg/dl in the adult, in these later circumstances, renal scans will usually be falsely positive for obstruction due to poor renal function. A VCUG will not be helpful in this patient. Even if VUR is present, it is not the source of the patient symptoms. MR urogram and a noncontrast CT scan are not effective or useful on asymptomatic patients.

Tsai JD, Huang FY, Lin CC, et al: Intermittent hydronephrosis secondary to ureteropelvic junction obstruction: Clinical and imaging features, PED 2006;117:139-146.

Question 100 of 150
A 67-year-old woman is undergoing surgery for repair of a post-hysterectomy vesicovaginal fistula located above the trigone with communication to the vaginal vault. A vaginal repair is selected. The best flap to interpose is:

A: peritoneal.

B: omental.

C: Martius.

D: labial myocutaneous.

E: gracilis.

A: "peritoneal." was the correct answer.

During a vaginal approach to a high riding post-hysterectomy fistula, a peritoneal flap is preferred. It is relatively easy to raise a well vascularized flap of peritoneum in this location. A Martius flap would be very difficult to mobilize to that location in the vagina without compromising the blood supply. An omental flap is occasionally useful from a vaginal approach if it had previously been secured in the pelvis from prior surgeries. A gracilis flap can be utilized but is typically not necessary for vesicovaginal fistulae. A labial myocutaneous flap can be utilized particularly if there is significant foreshortening of the vagina or loss of vaginal mucosa.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2339-2341.

Question 101 of 150
The drug that can be reabsorbed by an ileal neobladder and result in toxic serum levels is:

A: phenytoin.

B: trimethoprim-sulfamethoxazole.

C: sildenafil.

D: warfarin.

E: furosemide.

A: "phenytoin." was the correct answer.

Drugs which are excreted by the kidneys unchanged may be resorbed by the intestinal mucosa in urinary diversions, leading to toxic serum levels. Phenytoin is the only drug listed excreted into the urine unchanged and associated with toxicity in the setting of a urinary diversion. Other commonly used drugs that can be reabsorbed include methotrexate, lithium carbonate, and theophylline.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2573-2574.

Question 102 of 150
Gadolinium based contrast, compared to iodinated contrast, in patients on dialysis have a greater risk of:

A: anaphylactic reaction.

B: nephrotoxicity.

C: itching.

D: systemic fibrosis.

E: congestive heart failure.

D: "systemic fibrosis." is correct.

Nephrogenic systemic fibrosis (NSF) is a disorder characterized by tissue fibrosis that primarily occurs in dialysis patients following the administration of gadolinium contrast for radiologic studies. The other distractors listed: anaphylactic reaction, nephrotoxicity (patient is already on dialysis), pruritus and congestive heart failure do not occur more frequently following gadolinium than iodinated contrast agent. Studies suggest a strong association between the use of gadolinium based MRI contrast agents and the subsequent development of NSF in patients with renal disease. Gadolinium based MRI contrast agents are chemical chelates with the gadolinium ion bound by a linear or cyclic molecule. Since free gadolinium ions are toxic and poorly excreted, safety completely rests on the ability of the chelate molecule to prevent gadolinium release. The kidneys solely excrete these agents and their half-life prolongs from one to two hours to over 30 hours with severe renal dysfunction. Renal failure allows a situation where gadolinium based MRI contrast agents reside within patients for long periods of time potentially allowing for toxic levels of free gadolinium ions to build-up, deposit in tissues, and subsequently lead to fibrosis. Therefore, patients in ESRD requiring dialysis are at a greater risk of NSF.

Kuo PH, Kanal E, Abu-Alfa AK, Cowper SE: Gadolinium-based MR contrast agents and nephrogenic systemic fibrosis. RAD 2007;242:647-649.

Question 103 of 150
A six-month-old infant with severe pulmonary hypertension is on I.V. sildenafil at the dose of 1.2 mg/kg every six hours. After two days, he is successfully weaned off inhaled nitric oxide. He develops a sustained erection that has lasted 12 hours. The next step is:

A: observation.

B: discontinue I.V. sildenafil.

C: lower I.V. sildenafil dose.

D: switch to oral sildenafil.

E: re-initiate inhaled nitric oxide.

C: "lower I.V. sildenafil dose." was the correct answer.

Sildenafil has been very effective in treating pulmonary hypertension in infants and adults and was approved by the FDA in 2005. Many multi-institutional studies have demonstrated its safety and efficacy in this population. Doses for treatment of pulmonary hypertension are much higher than doses used to treat erectile dysfunction (po - 100 mg TID in children and adults, IV 1.2 mg/kg I.V.). This has led to a higher incidence of adverse events including dizziness, headache, flushing, rhinitis and prolonged erection. There have been several reports of prolonged erection in children using high I.V. doses. These patients have responded to simply lowering the dose of sildenafil. This patient has shown an excellent response to treatment with I.V. sildenafil (since he has been successfully weaned off inspired nitric oxide) of his life-threatening pulmonary hypertension and it should be continued. Observation is not appropriate with a prolonged erection of this type. No data is available on either switching to oral administration or to a different PDE5 inhibitor.

Huddleston A, Knoderer C, Morris J, Ebenroth, E: Sildenafil for the treatment of pulmonary hypertension in pediatric patients. PED CARD 2009;30:875-878.

Question 104 of 150
A 67-year-old man with a clinical stage T2bN0M0 Gleason 6 prostate cancer with a PSA of 7.8 ng/ml is treated with 70 Gy external beam XRT. His PSA nadirs to 0.8 ng/ml six months after therapy. Six months later, he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/ml. The most likely explanation for the elevated PSA level is:

A: prostatic infarct.

B: persistent prostate cancer.

C: PSA bounce effect.

D: radiation-induced prostatitis.

E: insufficient period of observation after therapy.

B: "persistent prostate cancer." was the correct answer.

A marked increase in serum PSA after a nadir within six months of external beam XRT is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks. A "bounce" can be defined as a rise greater than 0.2 ng/ml followed by a durable decline and is especially common after brachytherapy, where it is reported to occur in 24% to 35% of men. These can start any time from 9 to 30 months after brachytherapy with the majority of patients having a cumulative PSA rise of not more than 2 to 3 ng/ml. Prostatic infarct is rare following radiation therapy for prostate cancer, and would likely be associated with a significantly elevated PSA.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 1998, chap 92, p 3147.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, pp 3009-3011, 3013.

Question 105 of 150
A one-month-old girl with severe congenital heart disease had an episode of urosepsis. She has a solitary kidney with upper pole hydroureteronephrosis. Her renal scan shows 33% function in the upper pole with UVJ obstruction and a massively dilated upper pole ureter. The lower pole system is normal. The VCUG shows no reflux. The next step is antibiotic prophylaxis and:

A: percutaneous nephrostomy.

B: tapered upper pole reimplant.

C: upper pole distal cutaneous ureterostomy.

D: upper pole to lower pole distal ureteroureterostomy.

E: upper pole heminephroureterectomy.

C: "upper pole distal cutaneous ureterostomy." was the correct answer.

This infant has an obstructed upper pole ureter in a solitary kidney and suffered urosepsis. Surgical intervention is indicated. Her age, severe pulmonary and cardiac disease makes all upper abdominal surgery unattractive. Since she has a significant portion of her renal function in the upper pole a heminephrectomy is incorrect. Anastomosis of the massively dilated upper pole system to the normal lower pole system is technically difficult either at the level of the renal pelvis or the ureter. Percutaneous nephrostomy tubes can be a short term-answer in a critically ill child but they have complications including chronic infection, calculus formation, and displacement. Tapered reimplantation in a child of this age is technically challenging because of the small bladder. The best treatment is a cutaneous ureterostomy that will allow adequate drainage and prevent infection until definitive surgery is safe. It will also allow the dilated upper pole system to decompress and reconfigure the ureter.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3393.

Question 106 of 150
A 35-year-old woman with advanced multiple sclerosis and very impaired manual dexterity has severe urinary urgency and incontinence that does not respond to high dose antimuscarinic therapy. Urodynamics confirms neurogenic detrusor overactivity with a detrusor LPP of 70 cm H_2O. The best long-term treatment option is:

A: urethral catheter placement.

B: onabotulinum toxin injection of the bladder.

C: sacral neuromodulation.

D: augmentation cystoplasty.

E: ileal conduit.

E: "ileal conduit." was the correct answer.

Off-label onabotulinum toxin injection and augmentation cystoplasty place the patient at high risk for needing to perform CIC, which is not feasible in a patient with poor manual dexterity. Sacral neuromodulation is not FDA-approved for patients with neurogenic bladder nor can patients with an implanted neuromodulator undergo MRI, a study that has a high likelihood of being necessary in a patient with MS. The best choice for this patient is an ileal conduit. When possible, chronic urethral catheter placement should be avoided as it can result in significant urethral loss, UTIs, stones, and an increased risk of bladder malignancy. While not the recommended treatment, if long-term catheter drainage is chosen, a suprapubic tube is preferable to a urethral catheter, with careful long-term follow-up required.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2011.

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Question 107 of 150
A 50-year-old woman has acute left flank pain. Her hemoglobin is 7 gm/dl, and creatinine 2.1 mg/dl. CT scan shows a 15 cm lower-pole left renal mass and a large perinephric hematoma. There are low-density areas (Hounsfield units of -30) within the mass. After transfusion, the next step is:

A: observation.

B: selective angiographic embolization.

C: radical nephrectomy.

D: partial nephrectomy.

E: radio frequency ablation.
mass. After transfusion, the next step is:

B: "selective angiographic embolization." is correct.

The negative Hounsfield units on the CT scan indicate the presence of fat in the tumor, showing that this is a renal angiomyolipoma which has bled acutely. Angiographic embolization is often successful in these tumors, can be performed quickly without the need for general anesthetic, and can usually preserve the normal portion of the kidney. If a patient has tuberous sclerosis, bilateral disease, preexisting renal insufficiency, or other medical or urologic disease that could affect renal function in the future, selective embolization should be considered as the treatment. An alternative would be lower pole partial nephrectomy, once the patient is stabilized, but not in the acute setting as often times radical nephrectomy would be required. This would put this patient at significantly increased risk of dialysis. Laparoscopic nephrectomy would be very difficult in the face of recent acute hemorrhage. Radio frequency ablation should not be used for such a large tumor.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1580.

Question 108 of 150
A three-year-old boy with sickle cell disease has painful priapism for two hours. Initial management should include intravenous hydration, pain management, O_2 supplementation and:

A: oral pseudoephedrine.

B: exchange transfusion.

C: aspiration of the corporal bodies with instillation of dilute phenylephrine.

D: Winter's shunt.

E: cavernosaphenous vein shunt.

A: "oral pseudoephedrine." was the correct answer.

Priapism occurs in males with all forms of sickle cell anemia but most commonly the sickle cell disease. When presenting in childhood it may be associated with impotence later in life. A precipitating event should be searched for, such as drug usage, medications used for impotence (not in the pediatric population), infection, trauma, or psychoactive medications. Hydration and opioid analgesic are the mainstays of management of all forms of sickle cell pain. Oxygen is indicated when the patient is hypoxic. Erection results from relaxation of the smooth muscles of arterioles and trabeculae in the corpora, and detumescence is the result of smooth muscle contraction, opening emissary veins and increasing venous drainage. Therefore, detumescence should be facilitated by alpha-adrenergic agonists such as pseudoephedrine (a pure alpha-adrenergic agent). These agents induce contraction of the smooth muscle of the trabecular arteries of the cavernosa, forcing blood out of the cavernosa and promoting detumescence. Exchange transfusions are used after conservative methods mentioned above fail. Aspiration/injection or invasive shunts are used only if detumescence is not achieved by pharmacological methods.

Rogers ZR: Priapism in sickle cell disease. HEM/ONC CLIN N AM 2005;9:917-928.

Question 109 of 150
A 59-year-old man with Parkinson's disease complains of decreased force of stream, urinary frequency, urgency, and recurrent UTI. PVR is 200 cc. The next step is:

A: uroflowmetry.

B: pressure flow urodynamics.

C: chronic suppressive antibiotics.

D: CIC.

E: TURP.

E: "TURP." is incorrect.

B: "pressure flow urodynamics." was the correct answer.

Voiding dysfunction in men with Parkinson's disease can be a result of a multitude of factors, including outlet obstruction related to the prostate, detrusor-striated sphincter pseudodyssynergia, and rarely true dyssynergia. While detrusor overactivity is the most common urodynamic finding in this population, poor detrusor contractility or areflexia may also be seen. Although chronic suppressive antibiotics, tamsulosin, and CIC are not unreasonable options, urodynamics studies should be performed prior to proceeding with any therapy, no matter how simple, to ensure that the proper course is being taken.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2018.

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Question 110 of 150
A 60-year-old man with erectile dysfunction has an impalpable right testicle. Ultrasound reveals a 2 x 2 cm homogeneous ovoid mass at the right internal ring. The next step is:

A: observation.

B: serial ultrasounds.

C: percutaneous biopsy.

D: orchidopexy.

E: orchiectomy.

A: "observation." was the correct answer.

The peak age of onset of testicular cancer is between 25 and 35 and cryptorchidism is the only know risk factor for testicular cancer. However the risk of developing a testis tumor in an undescended testis drops dramatically after age 30. It has been calculated that the risk of dying from testis cancer after age 32 is outweighed by the risk of surgical mortality, though others have suggested a cutoff of 50. At age 60, this patient should be reassured and does not require serial ultrasounds.

Rozanski TA, Bloom DA: The undescended testis. Theory and management. UROL CLIN N AM 1995;22:107-118.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 893.

Question 111 of 150
A three-year-old boy who underwent a surgical correction for a high imperforate anus has inability to toilet train. VCUG reveals a large trabeculated bladder, grade 3 left VUR and incomplete bladder emptying. Ultrasound of the abdomen shows two normal kidneys. The next step is:

A: spinal ultrasound.

B: spinal MRI scan.

C: alpha-blocker.

D: CIC.

E: vesicostomy.

B: "spinal MRI scan." is correct.

Spinal cord abnormalities, including tethered cord or thickened or fatty filum terminale and lipoma have been noted in 20-50% of patients with imperforate anus. The severity of the lesion is proportional to the severity of the rectal lesion. In this case, the patient has a high-imperforate anus. VCUG reveals trabeculation, VUR into one kidney, and incomplete bladder emptying - a collection of findings for possible neurogenic bladder dysfunction. The best test is an MRI scan to rule-out spinal cord lesions since the kidneys are presently normal and the bladder has some subtle findings. Due to ossification of the spine a spinal ultrasound cannot rule-out a tethered spinal cord after three months of life. Vesicostomy, CIC, and antimuscarinic and alpha-blocker medications are premature at this point without formal diagnosis of neurogenic bladder and urodynamic study.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3647-3648.

Question 112 of 150
A 53-year-old woman reports leakage with sneezing and exercise. On physical exam, after voiding, she had no significant prolapse or leakage with coughing and strain. A voiding diary reveals three leaks per day over three days, and pad test reveals 40 gram weight gain each day of testing. Pelvic floor muscle training does not help the leakage. The next step is:

A: full bladder supine stress test.

B: VCUG.

C: antimuscarinic therapy.

D: periurethral injection.

E: midurethral sling.

A: "full bladder supine stress test." is correct.

This patient has symptomatic stress urinary incontinence (SUI), though none is noted on exam. She should not be treated invasively for SUI without documentation on exam. A positive pad test could be the result of urgency leakage, even though she does not report it, as could leaks reported on a voiding diary. She should return for a full bladder stress test done supine and repeated standing if necessary. If that remains negative, urodynamics could be offered to try to better delineate her leakage. VCUG will not add to the diagnostic evaluation in this case, as leakage noted during that test is still not diagnostic of SUI. Antimuscarinics should not be offered in the presence of primarily SUI complaints.

Nitti VW, Blaivas JG: Urinary incontinence: Epidemiology, pathophysiology, evaluation, and management overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 60, p 2059.

A 62-year-old man who seven years earlier received XRT for prostate cancer undergoes TURBT for a pT2 bladder cancer. Metastatic work-up is negative. He desires orthotopic neobladder diversion. At the time of cystectomy, the bowel appears healthy and urethral frozen section is negative. The following diversion should be performed:

A: orthotopic neobladder using right colon.

B: orthotopic neobladder using distal ileum.

C: continent cutaneous diversion.

D: ileal loop conduit.

E: transverse colon conduit.

B: "orthotopic neobladder using distal ileum." is correct.

Previously, prior pelvic radiation therapy was an absolute contraindication to orthotopic neobladder. However, recent reports have demonstrated that this can be a safe and effective form of diversion in properly selected patients. Astute intraoperative tissue assessment and determination of the condition of the urethra, ureters, and bowel must be done to limit complications and to provide the best possible clinical outcomes. In this case, it would be safe to proceed with orthotopic neobladder. Distal ileum is preferred to right colon in this setting. Right colon is less mobile and more difficult to detubularize than ileum. Preoperatively, the patient needs to be counseled that he is at higher risk for urinary incontinence.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, p 2613.

Question 114 of 150
A 45-year-old woman undergoes evaluation for recurrent calcium phosphate stones. Serum calciums range from 9.6-10.0 mg/dl ; PTH 62 pg/dl; urine calcium 281 mg/day (normal < 200 mg/day); and urinary citrate 460 mg/day (normal > 320 mg/day). To further elucidate her metabolic diagnosis, she should be placed on a two week course of:

A: thiazide.

B: mercaptoproprinoglycine.

C: sodium cellulose phosphate.

D: orthophosphate.

E: potassium citrate.

A: "thiazide." is correct.

This patient has a picture equivocal for primary hyperparathyroidism with hypercalciuria, serum calcium at the upper limits of normal and a high, but normal serum PTH value. A "thiazide challenge" would help to differentiate renal hypercalciuria from primary hyperparathyroidism. After treating her with a thiazide diuretic for two weeks, her serum calcium and PTH should remain within normal limits and her urinary calcium should return to normal if she has renal hypercalciuria. If, however, she has true hyperparathyroidism, she would become overtly hypercalcemic and her serum PTH would become elevated with no significant change in the urinary calcium excretion. The other agents will not help elucidate her underlying metabolic abnormalities.

Preminger GM: Medical management of urinary calculus disease. Part I: Pathogenesis and evaluation. AUA UPDATE SERIES 1995, vol 14, lesson 5, pp 38-43.

Question 115 of 150
After traumatic renal injury, the predictors of persistent bleeding are depth of parenchymal injury, presence of arterial blush, and:

A: urinary extravasation.

B: devitalized fragment.

C: thickness of hematoma.

D: location of laceration.

E: mechanism of injury.

C: "thickness of hematoma." is correct.

After renal trauma, the likelihood of renal exploration, renorraphy, and nephrectomy is associated with the grade of injury. For example, Grade 4 injuries have a 64 fold higher likelihood of needing nephrectomy than a Grade 1 injury. New literature shows that for grade 3 and 4 injuries, medial hematoma, hematoma > 3.5 cm in thickness and the presence of a vascular contrast blush are associated with increased risk of bleeding and need for intervention. The presence of such findings should alert the urologist to the potential need for angiography and selective embolization of segmental vascular injuries. While urinary extravasation and devitalized fragments increase the risk of urinoma formation, they are not associated with higher rates of bleeding. Neither location of laceration or mechanism of injury predict complications independent of grade.

Dugi DD III, Morey AF, Gupta A, et al: American Association for the Surgery of Trauma grade 4 renal injury substratification into grades 4a (low risk) and 4b (high risk). J UROL 2010;183:592-597

Question 116 of 150
A 73-year-old woman with a serum creatinine of 1.9 mg/dl undergoes right partial nephrectomy for a 4.5 cm hilar renal mass. Frozen section of the resected mass reveals chromophobe RCC with tumor less than 0.1 mm from the margin of resection in the area of renal sinus. The next step is:

A: no further therapy.

B: cryotherapy of resection bed.

C: radiofrequency ablation (RFA) of resection bed.

D: wide resection of renal sinus tissue.

E: completion radical nephrectomy.

A: "no further therapy." is correct.

The patient exhibits an absolute indication of nephron sparing surgery with a serum creatinine of 1.9 mg/dl which translates into a estimated GFR of 26 ml/min. This patient is in need of retaining as much functional renal parenchyma as possible. This coupled with the fact that she has exhibited an indolent chromophobe subtype of renal cancer is a strong indication to not perform further cancer eradicating procedures. In addition, even in the presence of a positive focal margin there is a very low risk of renal cancer relapse as demonstrated by multiple retrospective data analysis of this scenario. Energy-based therapies in the renal hilar bed would be associated with a high rate of renal unit loss.

Question 117 of 150
A healthy, ten-year-old girl has several urinalyses that show 2+ proteinuria. The next step is:

A: ASO titer and complement levels.

B: serum BUN and creatinine levels.

C: 24-hour urine for protein and creatinine.

D: spot urine for protein and creatinine.

E: first morning urine for protein and creatinine.

E: "first morning urine for protein and creatinine." is correct.

All children with > 1+ proteinuria on multiple occasions should be evaluated, starting with a urinalysis and first morning spot protein and creatinine ratio. The child must void before retiring and remain supine until the first morning urine sample is obtained. If the ratio is < 0.2, a diagnosis of orthostatic proteinuria is made and no further studies are needed. If other abnormalities are noted on the urinalysis and/or the first morning protein and creatinine ratio is > 0.2, a complete history and physical, including blood pressure, is suggested. Laboratory evaluations, including serum albumin, creatinine, cholesterol, electrolytes, and a 24-hour urine for protein and creatinine and creatinine clearance are obtained. A renal sonogram should be performed. Complement levels (C3, C4) antinuclear antigen (ANA), and serology for hepatitis B and C are indicated. HIV testing should be considered.

Question 118 of 150
In a man with azoospermia and elevated FSH, the best predictor of sperm retrieval from the testicle is:

A: serum FSH level.

B: testosterone level.

C: Y chromosome deletion subtype.

D: seminal volume.

E: presence of the vas deferens.

C: "Y chromosome deletion subtype." is correct.

In men with azoospermia, 7% will be associated with Y chromosome microdeletions. Classically, these patients will be found to have azoospermia or severe oligospermia with an elevation in FSH. The microdeletions occur in the long arm of the Y chromosome and are designated as AZFa (proximal), AZFb middle, and AZFc distal. The most common deletion is AZFc. About 75% of men with AZFc deletions have sperm on testicular biopsy. Sperm retrieval from men with complete AZFa or AZFb deletions have not been successful. The success of testicular sperm retrieval has not been correlated with FSH or testosterone level. Seminal volume does not reflect spermatogenic potential and has no relationship to the success of sperm retrieval. The absence of the vas deferens may be associated with obstructive azoospermia but these patients should have a normal FSH whereas this patient has an elevated FSH indicating non-obstructive azoospermia.

Question 119 of 150

A 76-year-old man has back pain. Seven years ago, he had a bilateral orchiectomy for T3NXM0 prostate cancer. MRI scan of the spine demonstrates a nonpathologic vertebral compression fracture. PSA is undetectable. The next step is:

A: observation.

B: bone scan.

C: DEXA scan (bone densitometry).

D: antiandrogen therapy.

E: local radiotherapy.

C: "DEXA scan (bone densitometry)." is correct.

This man, by virtue of his age and androgen deprivation therapy, is at increased risk for osteoporosis. The consequence of osteoporosis is an increase in bone fragility and a susceptibility to fracture. Androgen deprivation therapy (ADT) increases the risk of osteoporosis and is related to the duration of therapy. Compared to age-matched controls, men on ADT have 6.5% to 17.3% higher bone loss. Furthermore, the risk of non-pathologic fracture with ADT is 4% at five years and 20% at ten years. DEXA scan is the gold standard for diagnosis of osteoporosis, and is reported as compared to young adults (T-score) and age-matched (Z-score) controls. The treatment initially includes increasing physical activity on weight bearing joints and the addition of both Vitamin D and calcium. Since this patient has no clinical evidence of disease progression, there is no indication for additional treatment. MRI scan reveals only a nonpathologic fracture and PSA is undetectable; this combination obviates the need for a bone scan.

Oefelein MG, Ricchuiti V, Conrad W, et al: Skeletal fracture associated with androgen suppression induced osteoporosis: the clinical incidence and risk factors for patients with prostate cancer. J UROL 2001;166:1724-1728.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, pp 3089-3090.

Question 120 of 150
A 38-week-gestation newborn with a PUV has a serum creatinine of 1.1 mg/dl on day two of life. This child's serum creatinine value:

A: will not change with a rapid rise in GFR.

B: is a predictor of future poor renal function.

C: will decrease with completion of nephrogenesis.

D: is not reflective of the degree of renal function impairment.

E: will result in increased active sodium absorption from the descending limb of the loop of Henle
value:

D: "is not reflective of the degree of renal function impairment." is correct.

The creatinine in a newborn is reflective of maternal renal function and is not necessarily representative of the degree of renal impairment. In usual circumstances, serum creatinine will reflect the child's renal function by day 7-10. Long term renal function in children with PUV is best predicted by the nadir creatinine at one year of age. If the nadir creatinine is less than 0.8 mg/dl at one year of life, this is a good prognostic sign for retained renal function that will be able to be maintained into adulthood. By 34 weeks gestational age, nephrogenesis is complete and will not affect the level of the creatinine. Sodium reabsorption issues cannot be predicted until the degree of true renal functional impairment is better defined.

Chevalier RL, Roth JA: Renal function in the fetus, neonate and child, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 107, p 3153.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3599.

Haycock G: Perinatal nephrourology, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 2, pp 14-26.

Question 121 of 150
Ureteral peristalsis originates from:

A: preganglionic sympathetic input from T8 through L1.

B: postganglionic fibers arising from the celiac and aorticorenal plexuses.

C: parasympathetic input from the S2 through S4 spinal segments.

D: parasympathetic input from the vagus nerve.

E: intrinsic smooth muscle pacemaker sites in the minor calyces.

E: "intrinsic smooth muscle pacemaker sites in the minor calyces." is correct.

Ureteral peristalsis does not require autonomic input. It originates and is propagated from the intrinsic smooth muscle pacemaker sites in the minor calyces of the collecting system. The kidneys do receive preganglionic sympathetic input from T8 to L1 and postganglionic fibers from the celiac and aorticorenal ganglia, as well as parasympathetic input from the vagus nerves, however the role of ureteral autonomic input is unclear. This explains why denervated or transplanted kidneys maintain ureteral peristalsis.

Cybulski PA, Joo H, D'A, Honey J: Ureteroscopy: Anesthetic considerations. UROL CLIN N AM 2004;31:43-47.

Question 122 of 150
Ductal carcinoma of the prostate:

A: is best managed with chemotherapy.

B: is associated with high grade disease and recurrence.

C: confers no additional risk.

D: should be graded as Gleason grade 5.

E: commonly arises from the transition zone.

B: "is associated with high grade disease and recurrence." is correct.

Prostatic ductal carcinoma is an adenocarcinoma that arises in prostatic ducts. It should be graded as a Gleason 4+4 since it shares a cribriform pattern and is associated with high grade disease and recurrence. It should be treated similarly to other high grade adenocarcinomas with combination hormonal therapy/ radiation therapy or radical prostatectomy or cryotherapy or primary hormonal therapy depending on patient age, fitness and preference. Like other carcinomas, ductal carcinoma arises more commonly in the peripheral than the transitional zone.

Epstein JI: Pathology of prostatic neoplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 91, p 2881.

Question 123 of 150
A five-year-old boy has precocious puberty. Scrotal ultrasound reveals a mass in the upper pole of the left testis. FSH and LH are normal prepubertal levels. Testosterone and urinary 17-ketosteroid levels are significantly elevated. The urinary pregnanetriol levels are normal. The next step is:

A: glucocorticoid therapy.

B: biopsy of the mass.

C: enucleation of the mass.

D: simple orchiectomy.

E: radical orchiectomy.

C: "enucleation of the mass." is correct.

This boy has the classic triad of Leydig cell tumors: precocious puberty, testis mass, and elevated 17-ketosteroid levels. Pituitary lesions may also cause precocious puberty except LH and FSH will be elevated in a prepubertal male. These tumors must be differentiated from hyperplastic nodules of CAH which occur when steroid replacement is inadequate. Although both entities have elevated urinary 17-ketosteroids, only CAH due to the 21-hydroxylase deficiency will cause an elevation in urinary pregnanetriol levels. Glucocorticoid replacement will cause regression of the hyperplastic nodules of CAH. Simple and radical orchiectomy is often performed but not preferred. These tumors are generally benign and preservation of testicular tissue with testis sparing surgery is recommended.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Question 124 of 150
Compared to high-level disinfection (Cidex^{TM} -glutaraldehyde), sterilization of a flexible cystoscope offers greater protection against contamination by:

A: bacteria.

B: bacterial spores.

C: Mycobacterium tuberculosis.

D: virus.

E: fungi.

B: "bacterial spores." is correct.

Sterilization, whether by steam under pressure, ozone, ethylene oxide gas or other methods involves the complete destruction of all microbial life, including bacterial spores. Disinfection uses thermal or chemical destruction of pathogenic and other types of microorganisms, and is less lethal than sterilization. High-level disinfection (HLD) cannot kill large numbers of bacterial spores unless they are exposed for an extended time period. Intermediate-level disinfection inactivates M. tuberculosis, vegetative bacteria, most viruses, and most fungi, whereas low-level disinfection cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores.

Clemens JQ, Dowling R, Foley F, et al: JOINT AUA/SUNA WHITE PAPER ON REPROCESSING OF FLEXIBLE CYSTOSCOPES. American Urological Association Education and Research, Inc and Society of Urologic Nurses and Associates, 2009.
http://www.auanet.org/content/media/cystoscopywhitepaper.pdf

Question 125 of 150
A 55-year-old woman with metastatic RCC has received five months of therapy with sunitinib. She undergoes uneventful right laparoscopic radical nephrectomy for a 5 cm upper pole renal mass. On post-op day one, she is obtunded, febrile, and complains of nausea and diffuse abdominal pain. BP is 80/50 mm Hg, HR 78 bpm, and urine output is 30 ml over four hours. Laboratory studies show a stable hemoglobin of 13.5 g/dl, and normal WBC. Chemistry studies are pending. The next step is normal saline fluid bolus and:

A: I.V. dexamethasone.

B: I.V. desmopressin.

C: CT scan of abdomen and pelvis.

D: angiography.

E: surgical exploration.

A: "I.V. dexamethasone." was the correct answer.

The patient described above has the classic symptoms and signs of acute adrenal insufficiency. The most common symptoms and signs of acute adrenal insufficiency occurring in the setting of clinical deterioration are fever, nausea/vomiting, abdominal or flank pain, hypotension, abdominal distention, lethargy/obtundation, hyponatremia, and hypokalemia. The urologist should have a high index of suspicion for acute adrenal insufficiency following radical nephrectomy and the degree should be heightened in a patient receiving sunitinib as it may contribute to the condition. Physicians are advised to monitor for adrenal insufficiency in patients treated with sunitinib who experience stress such as surgery. As this was an upper-pole mass, the ipsilateral adrenal may have been removed or devascularized as well. Emergency treatment of adrenal crisis is normal saline fluid resuscitation, and dexamethasone sodium phosphate injection (Decadron, 4 mg I.V.). Stat serum electrolytes, glucose, cortisol, and plasma ACTH are obtained. A short ACTH stim test to confirm the diagnosis of adrenal insufficiency is then performed. Supportive measures are provided as needed. Mineralocorticoids are unnecessary and ACTH is not useful. CT scan would be indicated if the patient did not respond to fluid and steroids and adrenal insufficiency is ruled out. Angiography and surgical exploration are also premature given the clinical scenario suggestive of adrenal crisis. I.V. desmopressin would not be first line treatment in this patient with adrenal crisis, but could be indicated if hypotension was refractory to fluid resuscitation and steroids.

Motzer RJ Rini BI, Bukowski RM, et al: Sunitinib in patients with metastatic renal cell carcinoma. JAMA 2006;295:2516.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1844-1845.

Question 126 of 150
A patient with an ileal conduit urinary diversion is undergoing renal function tests. The parameter that can be most accurately measured is:

A: creatinine clearance.

B: urinary concentrating ability.

C: fractional excretion of sodium.

D: acid loading.

E: proteinuria.

C: "fractional excretion of sodium." is correct.

Measuring renal function in patients with intestinal diversion may be difficult. Most parameters of renal function will be affected by the intestinal absorption of various substances in the urine, including creatinine and urea, as well as secretion of alkalinizing substances and alteration in the osmotic content. Sodium handling in ileal segments is not markedly altered as ammonium substitutes for sodium in the Na/H antiporter in the bowel lumen.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3778-3779.

Question 127 of 150
A 62-year-old man with Klinefelter Syndrome underwent a mastectomy for breast cancer three months ago. He complains of decreased energy and decreased libido. A total testosterone is 210 ng/dl and LH is 15 IU/l. The next step is therapy with:

A: oral phosphodiesterase inhibitors.

B: low dose transdermal estrogen.

C: aromatase inhibitors.

D: testosterone.

E: beta-hCG.

C: "aromatase inhibitors." was the correct answer.

Men with Klinefelter Syndrome are at increased risk for the development of breast cancer. Approximately 80% of cases are estrogen receptor positive, therefore any treatment that increases estrogen levels is contraindicated unless the patient is cured of breast cancer. This patient has symptomatic hypogonadism which would benefit from an increase in serum testosterone but he was recently treated for breast cancer. In men a portion of testosterone is converted to estradiol, primarily in adipose tissue. Aromatase inhibition will decrease conversion of testosterone to estrogen thereby raising testosterone levels while at the same time decreasing estrogen levels. This is safe in men with breast cancer. Phosphodiesterase inhibitors are indicated for erectile dysfunction which this patient does not complain of. Estrogen therapy has no role in treating these symptoms in men and risks stimulation of breast cancer cell growth. HCG will increase testicular production of testosterone. The increased peripheral testosterone levels from either HCG or testosterone therapy will result in increased estrogen levels due to the peripheral conversion to estrogen. Therefore these are inappropriate therapies in men with breast cancer. In Kleinfelters, patients without breast cancer, standard treatment of hypogonadism with testosterone replacement is safe.

Morales A, Morley J, Heaton JPW: Androgen deficiency in the aging male, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 27, p 859.

Dimitrov NV, Colucci P, Nagpa L: Some aspects of the endocrine profile and management of hormone-dependent male breast cancer. THE ONCOLOGIST 2007;12:798-807.

Cutuli B, Le-Nir CC, Serin D, et al: Male breast cancer. Evolution of treatment and prognostic factors. Analysis of 489 cases. CRITICAL REVIEWS IN ONCOLOGY/HEMATOLOGY 2010;73:246-254.

Question 128 of 150
A 62-year-old man has a radical prostatectomy for prostate cancer. Histology reveals a Gleason 9, pT3aN1Mx cancer with negative surgical margins. His post-prostatectomy PSA is < 0.1 ng/ml. To minimize his risk of relapse, the next step is:

A: adjuvant docetaxel.

B: external beam XRT.

C: LH-RH agonist therapy for six months.

D: lifelong LH-RH agonist therapy.

E: LH-RH agonist therapy for six months and external beam XRT.

D: "lifelong LH-RH agonist therapy." is correct.

The treatment of men with isolated lymph node metastasis at the time of prostate cancer surgery has been controversial. The use of adjuvant XRT for adverse pathologic characteristics at the time of prostatectomy has been recently evaluated in two large randomized clinical trials. However, patients with lymph node metastasis, such as patients here, were not included in this trial, and it is generally felt that such individuals are at risk of systemic rather than local recurrence. ECOG 3807 evaluated the use of immediate hormonal ablation versus observation in men with isolated lymph node metastases noted on final pathology after radical prostatectomy. The patients treated with immediate therapy had improved overall and cancer-specific survival relative to men undergoing initial observation. No trial has been performed showing an advantage of any chemotherapy treatment in the adjuvant setting. The advantage of short-term androgen deprivation therapy in this setting has not been established.

Question 129 of 150

A five-year-old girl has a history of VUR that has resolved spontaneously. Five months after stopping prophylactic antibiotics, she has dysuria, frequency, urgency, and urge incontinence. She is afebrile and a urine culture is positive for > 10^5 E coli. The next step is treatment of UTI and:

A: voiding diary and timed voiding.

B: restart prophylactic antibiotics.

C: VCUG.

D: DMSA renal scan.

E: urodynamics.

A: "voiding diary and timed voiding." is correct.

This child has the symptoms of dysfunctional voiding and cystitis. It is not uncommon for children with dysfunctional voiding habits to develop UTIs, but unless they have VUR, they are unlikely to have pyelonephritis, which is usually associated with a fever. In this setting, it is unnecessary to perform another VCUG or renal scan because the infection was not febrile in nature. Urodynamics are likely to be normal, and the emphasis should be on bladder retraining, to avoid any further episodes. While prophylactic antibiotics may be needed to keep these children infection free while they retrain their bladders, it is preferable to keep them off prophylactic antibiotics if possible. Constipation is often present and should be concurrently treated.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3261-3262.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3618-3620.

Question 130 of 150
A 33-year-old woman has dysuria and fever. Urinalysis shows specific gravity of 1.025, leukocyte esterase positive and nitrite negative. There are 10 RBC's and 30 WBC's per hpf on microscopy. Urine culture will likely grow:

A: Escherichia coli.

B: Pseudomonas aeruginosa.

C: Serratia marcescens.

D: Klebsiella oxytoca.

E: Proteus mirabilis.

B: "Pseudomonas aeruginosa." was the correct answer.

Bacteria may convert urinary nitrates into nitrites and this may be used as evidence of UTI. Gram negative bacteria commonly do this, while gram positive species generally do not. One very important exception is Pseudomonas, which does not contain the enzymatic machinery to make this conversion. Thus, a negative nitrite by urinary dipstick in this patient with symptoms and other UA finding suggesting UTI should likely be treated presumptively pending culture and Pseudomonas is one of the very important, aggressive pathogens that must be considered in this circumstance.

Gerber GS, Brendler CB: Evaluation of the urologic patient: History, physical examination, and urinalysis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 3, p 104.

Question 131 of 150
A patient with a history of low-grade Ta superficial urothelial carcinoma of the bladder has three new bladder lesions 14 months after last resection. Histology reveals that two of the tumors are Ta while the third is T1. No muscularis propria is seen in the specimens. The next step is:

A: surveillance cystoscopy every three months.

B: intravesical mitomycin C therapy.

C: intravesical BCG therapy.

D: intravesical BCG plus interferon therapy.

E: repeat transurethral resection.

E: "repeat transurethral resection." is correct.

This patient has not been adequately staged which makes the choice of an appropriate therapy difficult. According to the AUA Guidelines on superficial bladder cancer, in the absence of muscularis propria, data suggest that 20 to 40% of patients will have residual tumor and/or unrecognized muscle invasive disease. Therefore, repeat resection is considered a standard in this setting. All other therapeutic options would be inappropriate at this point because the patient has not been completely staged.

Hall MG, Chang SS, Dalbagni G, et al: Guideline for the management of nonmuscle invasive bladder cancer: (Stages Ta,T1, and Tis): 2007 update. MANAGEMENT OF NONMUSCLE INVASIVE BLADDER CANCER GUIDELINE. American Urological Association Education and Research, Inc, 2007. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=bc

Question 132 of 150
A 14-year-old girl has primary amenorrhea. She is in the 25th percentile for height and has a webbed neck. Her karyotype is 45 XO. The most likely genitourinary abnormality is:

A: renal agenesis.

B: horseshoe kidney.

C: VUR.

D: UPJ obstruction.

E: vaginal agenesis.

B: "horseshoe kidney." is correct.

This patient has Turner Syndrome. These girls can be recognized by their typical physical findings including short stature, webbed neck, and shield chest. Girls with the 45 XO karyotype usually exhibit all the stigmata of the syndrome. Patients with the 45 XO/46 XY karyotype are at increased risk for dysgerminoma and gonadoblastoma and require gonadectomy. Horseshoe kidney occurs with increased prevalence in patients with Turner syndrome and a renal ultrasound is warranted. VUR, renal agenesis and vaginal agenesis are not associated with Turner syndrome. UPJ obstruction may occur in association with horseshoe kidney, but is not seen with increased frequency in Turner syndrome.

Forest MG: Ambiguous genitalia/intersex: Endocrine aspects, in Gearhart JP, Rink R, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, pp 623-658.

Diamond DA: Sexual differentiation: Normal and abnormal, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 128, p 3810.

Question 133 of 150
A 45-year-old woman with hypocitraturia and chronic diarrhea is prescribed potassium citrate tablets three times daily. She notices whole tablets in her bowel movements. The next step is:

A: continue therapy, as the medication is still absorbed.

B: increase the medication dosage.

C: switch to liquid preparation of potassium citrate.

D: increase the medication frequency.

E: switch to baking soda.

C: "switch to liquid preparation of potassium citrate." is correct.

The goal of potassium citrate therapy is to correct the acidosis associated with chronic diarrheal states. Although in many instances potassium citrate tablets appear in the stool. Although the medication is being absorbed, switching to a liquid preparation is recommended in these patients. The slow release approach is mitigated in these cases. Baking soda and the dosing measures would not achieve the best outcome.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, pp 1422-1423.

Question 134 of 150
A 55-year-old man seeks consultation regarding prostate cancer screening. According to the U.S. Prostate, Lung, Colon, and Ovarian (PLCO) trial, prostate cancer screening increases:

A: prostate cancer detection.

B: detection of Gleason's score 8-10 tumors.

C: detection of high stage (advanced) tumors.

D: prostate cancer survival.

E: quality of life in men with elevated PSA.
Ovarian (PLCO) trial, prostate cancer screening increases:

A: "prostate cancer detection." is correct.

The Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial randomly assigned 76,693 men to receive either annual screening (38,343 subjects) or usual care as the control (38,350 subjects). Men in the screening group were offered annual PSA testing for six years and DRE for four years. After seven years of follow-up, the incidence of prostate cancer was higher in the screened population; the number of prostate cancers per 10,000 person-years was 116 (2820 cancers) in the screening group and 95 (2322 cancers) in the control group. Prostate cancer survival was similar between study groups; the incidence of death per 10,000 person-years was 2.0 (50 deaths) in the screening group and 1.7 (44 deaths) in the control group. The numbers of subjects with advanced (stage III or IV) tumors were similar in the two groups, with 122 in the screening group and 135 in the control group, though the number of subjects with a Gleason score of 8 to 10 was higher in the control group (341 subjects) than in the screening group (289 subjects). Quality of life was not assessed. Thus, in this US trial, screening did improve detection rate; however, at a median follow-up of seven years, there was no difference in survival between the two groups.

Andriole GL, Grubb III RL, Buys SS, et al: Mortality results from a Randomized Prostate-Cancer Screening Trial. NEJM 2009;360:1310-1309.

Question 135 of 150
A nine-year-old boy has intermittent gross, painless hematuria. Urinalysis is normal except for numerous red cells without casts. Urine culture and ultrasound are negative. A percutaneous renal biopsy shows segmental glomerulonephritis with immunoglobulin deposition in mesangial areas. The diagnosis is:

A: Alport's syndrome.

B: Henoch-Schonlein purpura.

C: membranous glomerulonephritis.

D: IgA nephropathy.

E: hemolytic uremic syndrome.

D: "IgA nephropathy." is correct.

One of the most frequent causes of intermittent gross hematuria in children is Berger's disease or IgA nephropathy. While the disease may be more benign in children, occasional cases will progress to renal failure, making its recognition important. These patients should be followed with serum creatinine and 24-hour urine for creatinine and protein. If these indicate mild and stable disease, biopsy is not required. Hemolytic uremic syndrome is the triad of hemolytic microangiopathic anemia in association with thrombocytopenia and renal insufficiency. Henoch-Schonlein purpura (HSP) can present with acute glomerulonephritis and can evolve into IgA nephropathy. HSP is a systemic vasculitis which commonly affects the skin, GI tract, joints and can affect the kidney. Membranous glomerulonephritis (MGN) is the most common cause of nephritis in adults but seen less frequently in children. The pathologic hallmark of MGN is the presence of glomerular subepithelial immune deposits on electron microscopic examination. Alport's Syndrome is an inherited disorder of glomerular basement membrane due to type IV collagen abnormality and is associated with a hearing loss. The biopsy findings will show abnormality of the glomerular vasculature.

Roy S III, Noe HN: Renal disease in childhood, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 53, pp 1833-1845.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3226.

Question 136 of 150
A 32-year-old woman with severe pyelonephritis is receiving ampicillin combined with a single daily dose of tobramycin, 7 mg/kg. After 36 hours, she remains febrile and has persistent flank pain. Following the second dose, a trough serum tobramycin level is 12 mcg/ml (5-10 mcg/ml). The next step is:

A: continue current tobramycin regimen.

B: continue tobramycin and start n-acetyl cysteine.

C: decrease tobramycin dose.

D: decrease tobramycin frequency.

E: discontinue tobramycin and start aztreonam

D: "decrease tobramycin frequency." was the correct answer.

When combined with TMP-SMX or ampicillin, aminoglycosides are the first drugs of choice for febrile UTIs. Their nephrotoxicity and ototoxicity are well-recognized; hence, careful monitoring of patients for renal and auditory impairment associated with infection is indicated. Once-daily aminoglycoside regimens have been instituted to maximize bacterial killing by optimizing the peak concentration to minimal inhibitory concentration ratio and reduce potential for toxicity. Administering an aminoglycoside as a single daily dose can take advantage not only of its concentration-dependent killing ability but also of two other important characteristics: time-dependent toxicity and a more prolonged post-antimicrobial effect. The regimen consists of a fixed 7 mg/kg dose of gentamicin or 5-7 mg/kg tobramycin. Subsequent interval adjustments are made by using a single concentration in serum and a nomogram designed for monitoring of once-daily therapy. Antimicrobial doses are given at the interval determined by the drug concentration of a sample obtained after the start of the initial infusion. This regimen is clinically effective, reduces the incidence of nephrotoxicity, and provides a cost-effective method for administering aminoglycosides by reducing ancillary service times and serum aminoglycoside determinations. In this case the serum level of tobramycin is high and requires adjustment. Changing to q 36 hours is indicated. Decreasing the dose may lead to the same reduction in levels but with a reduction in effectiveness. Although the patient continues to have symptoms, this is common during the initial course of pyelonephritis and is not an indication at 48 hours to change antibiotic regimen.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 223.

Continue

Question 137 of 150
A 30-year-old man has persistent hypertension and paroxysmal headaches. Plasma catecholamine levels are 1100 ng/l. Three hours after a single oral dose of clonidine, 0.3 mg, catecholamine levels are 400 ng/l. The most likely diagnosis is:

A: renal artery stenosis.

B: pheochromocytoma.

C: essential hypertension.

D: adrenal hyperplasia.

E: idiopathic hyperaldosteronism.

C: "essential hypertension." was the correct answer.

Rarely, patients with suspected pheochromocytoma present with normal or mildly elevated plasma catecholamines. When signs and symptoms of pheochromocytoma are present and plasma catecholamines are mildly elevated, it is critical that the cause of hypertension is determined. The best way to distinguish between essential hypertension and pheochromocytoma in this situation is an oral clonidine test. Patients with essential hypertension will experience a significant drop in plasma catecholamines, while those with pheochromocytoma will not. The clonidine test is not useful in assessing for renal artery stenosis, adrenal hyperplasia or idiopathic hyperaldosteronism.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Question 138 of 150
A healthy five-year-old boy is evaluated for bloody urethral discharge. VCUG demonstrates a diverticulum of the bulbous urethra. The most likely explanation for the radiographic finding is:

A: utricle.

B: straddle injury.

C: meatal stenosis.

D: urethral duplication.

E: Cowper's gland duct cyst.

E: "Cowper's gland duct cyst." was the correct answer.

A diverticulum of the bulbous urethra in a young male is most commonly related to dilation of a Cowper's gland duct. The ducts of Cowper's gland open into the urethra in the bulb and travel to the glands located in the urogenital membrane adjacent to the membranous urethra. These cysts have been found in 2.3% of autopsied males; however, they are rarely diagnosed clinically. Straddle injury usually is associated with stricture formation. Urethral duplication, although a possibility here, is much less common and often associated with infection. A utricle would enter the prostatic urethra.

Sharp DS, Angermeier KW: Surgery of penile and urethral carcinoma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 32, p 1030.

Question 139 of 150
A 25-year-old man is struck by an automobile. He has a left superior and inferior pubic ramus fracture as well as a fracture of the sacroiliac joint. He has a palpable bladder. No blood is noted at the meatus and the prostate is in normal position on DRE. The next step is:

A: CT urogram.

B: retrograde urethrogram.

C: cystogram.

D: abdominal ultrasound.

E: suprapubic tube.

B: "retrograde urethrogram." is correct.

The most likely genitourinary injury in this patient is a prostatomembranous urethral disruption, as suggested by the type of pelvic fracture. Fractures of the pubic rami, in particular the medial inferior ramus, and pubic diastasis are independent predictors of urethral injuries. In most patients, in the absence of blood at the urethral meatus, catheterization is appropriate as the first step. However, in a high risk patient with a palpable bladder and inferior ramus fracture, a urethrogram is the easiest, most specific, and most rapid way to assess urethral injury. Upper tract imaging is not indicated in patients with pelvic fracture. Cystography may be indicated, but not before the urethra has been determined either by retrograde urethrogram or catheterization, to be intact. CT urogram is not a sensitive or specific test for urethral injury. Abdominal ultrasound may demonstrate intraperitoneal fluid but is unlikely to detect injuries to the urethra. Suprapubic cystostomy is not indicated prior to evaluation of the urethra. A gentle attempt at urethral catheterization may be appropriate prior to imaging in the unstable patient.

Basta AM, Blackmore CC, Wessells H: Predicting urethral injury from pelvic fracture patterns in male patients with blunt trauma. J UROL 2007;177:571-575

Question 140 of 150
In a 65-year-old man with RCC, the panel of molecular markers that would be most predictive of good prognosis is:

A: high carbonic anhydrase IX, absent vimentin, absent p 53 expression.

B: low carbonic anhydrase IX, positive vimentin, absent p53 expression.

C: high carbonic anhydrase IX, positive vimentin, positive p53 expression.

D: low carbonic anhydrase IX, absent vimentin, positive p53 expression.

E: high carbonic anhydrase IX, positive vimentin, positive p53 expression

A: "high carbonic anhydrase IX, absent vimentin, absent p 53 expression." is correct.

In multivariate analysis of a microarray of multiple RCC, certain molecular markers were independently predictive of survival in patients. Those that were predictive of longer survival included high carbonic anhydrase IX (CAIX), absent vimentin and absent p53 expression. CAIX is a von Hippel-Lindau mediated enzyme. High expression of CAIX predicts favorable prognosis. These factors were predictive independent of clinical variables.

Tununguntla HSGR, Jorda M: Diagnostic and prognostic molecular markers in renal cell carcinoma. J UROL 179:2008:2096-2102.

Question 141 of 150
A three-year-old child with a duplicated collecting system has VUR to the upper renal segment upon voiding. The most appropriate statement is:

A: this type of anomaly is commonly bilateral.

B: the ureter to the upper segment is ectopic.

C: the ureter to the lower segment is ectopic.

D: the ureter to the lower segment is obstructed.

E: reflux to the upper system occurs frequently with complete ureteral duplication

B: "the ureter to the upper segment is ectopic." was the correct answer.

With complete ureteral duplication, the upper pole ureter is more likely to have an ectopic insertion. VUR is more common into the lower pole segment. Reflux into the upper pole moiety alone occurs in children when the orifice is ectopic in the bladder neck or urethra. The ureter lacks trigonal support and has an inadequate submucosa tunnel. This situation occurs in less than 10% of cases of complete ureteral duplication. Ureteral duplication, incomplete or complete, occurs in 0.8% of the population. As many as 40% of cases are bilateral, but most of these are insignificant partial ureteral duplications. Bilateral ectopic insertion of the upper pole ureter with VUR into this moiety alone is very rare. The lower pole ureteral segment would not be ectopic as that would not follow the Weigert-Meyer rule (lower pole VUR, upper pole obstruction). There is no reason to suspect that the lower pole is obstructed if there is VUR into the upper pole system.

Snyder HM: Anomalies of the ureter, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby-Year Book, 1997, pp 2197-2232.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3387

Question 142 of 150
A 26-year-old man had blunt abdominal trauma. An abdominal CT scan revealed a deep renal laceration and urinary extravasation. After ten days of expectant management, a repeat CT scan reveals persistent urinary extravasation with a small urinoma. He remains stable and afebrile. The next step is:

A: continued observation.

B: insertion of a ureteral stent.

C: percutaneous perinephric drainage.

D: percutaneous nephrostomy drainage.

E: surgical exploration and repair.

B: "insertion of a ureteral stent." was the correct answer.

Patients with blunt injuries of the kidney have been managed successfully with observation alone even when there is evidence of urinary extravasation and preliminary imaging studies. Extravasation resolves in approximately 85% of renal injuries without the need for internal or external drainage. However, patients with persistent extravasation should be managed with optimized drainage of urine with an internal ureteral stent. This may require additional decompression of the bladder to allow complete closure of the injury to the collecting system. Percutaneous nephrostomy tube placement may be difficult in a patient without hydronephrosis and percutaneous perinephric drainage is not necessary unless there is evidence of infection or large urinoma formation. Surgical exploration and repair is excessively invasive; ten days after injury such an exploration may increase the likelihood of nephrectomy due to the difficulty of renorrhaphy in the face of significant perinephric reaction to urine leakage.

Matthews LA, Spirnak JP: The non-operative approach to major blunt renal trauma. SEM UROL 1995;13:77-82.

Alsikafi NF, McAninch JW, Elliott SP, Garcia M: Nonoperative management outcomes of isolated urinary extravasation following renal lacerations due to external trauma. J UROL 2006;176:2494-2497.

Question 143 of 150
The factor most predictive of finding fibrosis only during post-chemotherapy RPLND for germ cell tumor is:

A: use of bleomycin chemotherapy regimen.

B: size of pre-chemotherapy retroperitoneal mass.

C: normal post-chemotherapy CT scan.

D: teratoma in primary tumor.

E: normal preoperative serum tumors markers.

C: "normal post-chemotherapy CT scan." was the correct answer.

Normal serum tumor markers following chemotherapy are associated with a 10-20% chance of viable germ cell tumor and 30% probability of teratoma. Normal CT scan with no lymph node larger than 8 mm is associated with a greater than 90% chance of fibrosis at the time of RPLND. The presence or absence of bleomycin in the chemotherapy regimen is not associated with probability of response and the prechemotherapy mass size or stage is not a powerful predictor of post chemotherapy histology. Normal pre-chemotherapy tumor markers and the presence of teratoma are not predictive of fibrosis at RPLND.

Sheinfeld J, Bartsch G, Bosl GJ: Surgery of testicular tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 30, p 936.

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Question 144 of 150
An eight-year-old, 25 kg boy with pyelonephritis has vomiting and diarrhea for three days. Serum electrolytes are: sodium 150 mEq/l, potassium 3.0 mEq/l, chloride 117 mEq/l, bicarbonate 25 mEq/l. The most appropriate I.V. therapy for the first 24 hours is:

A: 0.25 NS with 40 mEq/l of KCl at 100 cc/hr.

B: D5W with 40 mEq/l of KCl at 200 cc/hr.

C: NS with 40 mEq/l of KCl at 100 cc/hr.

D: NS with 40 mEq/l of KCl at 75 cc/hr.

E: D5W with 10 mEq/l of KCl at 200 cc/hr.

A: "0.25 NS with 40 mEq/l of KCl at 100 cc/hr." is correct.

The child has significant hypernatremia and hypokalemia. Most cases of hypernatremia are due to loss of water or failure to adequately replace water loss. In this case, water loss is due to diarrhea and vomiting. These extrarenal water losses are associated with a decrease in extracellular fluid volume indicating deficits in total body sodium as well as water. The proportionally greater deficiency of water than of sodium leads to the increase in the serum sodium concentration. Initial fluid replacement in this child should replace the water loss and salt losses with a hypotonic salt solution (0.25NS with 40 mEq/l KCl at 100 cc/hr) at a rate 1.5-2.0x maintenance.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1149-1151.

Question 145 of 150
A 37-year-old man sustains a high velocity pelvic gunshot wound with no obvious ureteral injury at exploration. Two days later, during a scheduled second look operation the distal ureter appears contused. There is no extravasation of I.V. indigo carmine. The next step is:

A: continued observation.

B: cystoscopy and ureteral stent.

C: percutaneous nephrostomy.

D: ureteroneocystostomy.

E: debridement and ureteroureterostomy.

B: "cystoscopy and ureteral stent." is correct.

Blast injury represents a complex set of events resulting in direct or indirect soft tissue damage. The initial blast can cause tissue damage, and propelled fragments can cause penetrating injuries. Falling objects or impact from blast displacing the victim's body against a stationary object usually cause blunt injuries but could also cause penetrating injuries. Additionally, victims often suffer burns from the heat discharged by the explosive device or by fire ignited by the blast. Gunshot wounds represent localized tissue damage similar to the initial blast described above. The degree of injury reflects the weapon, bullet, and distance from the projectile to the affected organ. Bullet velocity has the greatest effect on soft tissue damage; whether bullet velocity reflects tissue damage precisely is controversial. However, high-velocity weapons clearly cause extensive soft tissue damage. The greater the bullet velocity, the larger the temporary cavity created, indicating the extent of soft tissue stretch and destruction The progressive changes seen on day one post injury suggest an evolving blast injury. Minor ureteral contusions from penetrating mechanisms can be treated with stent placement. Caution must be exercised, however, as minor-appearing ureteral contusions may stricture later or break down secondary to unappreciated microvascular damage to the ureter. Thus, in this case, stenting is the next step because a more severe injury is not evident. When tissue damage appears more significant the injured portion of the ureter should be débrided and ureteroureterostomy used to repair the injury. Exceptions to this are the pelvic ureter, for which reimplantation is preferred over ureteroureterostomy due to the poor blood supply to the distal ureter. Although percutaneous nephrostomy is useful in establishing proximal diversion of urine, it is probably not yet indicated in this case; furthermore, stenting across the injured segment is strongly recommended to reduce the risk of complete obliteration.

McAninch W, Santucci RA: Renal and ureteral trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 39, p 1274.

Question 146 of 150
During open inguinal hernia repair, a 19-year-old man undergoes complete excision of an incidental 2 cm spermatic cord mass. The final pathology shows well-differentiated leiomyosarcoma with negative surgical margins. A metastatic survey is negative. The next step is:

A: surveillance.

B: inguinal orchiectomy with high ligation of the cord.

C: XRT to the inguinal region.

D: RPLND.

E: systemic chemotherapy.

A: "surveillance." is incorrect.

B: "inguinal orchiectomy with high ligation of the cord." was the correct answer.

Paratesticular leiomyosarcoma occurs most commonly during the first two decades of life. On gross inspection, these tumors appear circumscribed, but on microscopic examination they often extend well beyond the margin seen by the naked eye. Despite achieving a negative margin, local recurrence risk is significant. Because of this, the primary paratesticular tumor should be removed by inguinal orchiectomy with high ligation of the cord. Excision of the inguinal scar is also usually performed at time of orchiectomy to reduce local recurrence. Chemotherapy and radiation are reserved for patients with gross or microscopic residual disease after surgical resection. RPLND for stage I paratesticular leiomyosarcoma is not indicated.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 933

Question 147 of 150

During an abdominal surgery, a solid fibrous cord-like structure is encountered, coursing lateral to the bladder and ascending on the posterior aspect of the anterior abdominal wall toward the umbilicus. This structure represents a remnant of the:

A: Wolffian duct.

B: Müllerian duct.

C: urogenital sinus.

D: hypogastric artery.

E: umbilical vein.

D: "hypogastric artery." was the correct answer.

The fetal hypogastric arteries carry de-oxygenated blood to the umbilical arteries and placenta. When the placental circulation ceases at birth, the part of the hypogastric artery distal to the superior vesical artery is converted into a solid fibrous cord which becomes the medial umbilical ligament (obliterated hypogastric artery).

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 2, p 38.

Question 148 of 150

A 35-year-old man has primary infertility. On physical exam, neither vas deferens is palpable, each testis is 34 ml in volume. Semen analysis reveals a 0.3 ml volume and azoospermia. The man and his wife would like to pursue all options for parenthood. The next step is:

A: scrotal ultrasound.

B: Y-chromosome microdeletion analysis and karyotype.

C: cystic fibrosis mutation analysis on both partners.

D: diagnostic testicular biopsy with scrotal exploration.

E: donor sperm intrauterine insemination.

C: "cystic fibrosis mutation analysis on both partners." is correct.

The majority of patients with congenital bilateral absence of the vas deferens (CBAVD) are found to have mutations or 5T polymorphism of the CFTR (cystic fibrosis transmembrane regulator protein) gene. Men with CBAVD may have subtle pulmonary disfunction such as recurrent bronchitis and other family members may carry CF mutations, therefore the man should be offered CF testing. If the female partner has a CF mutation, the couple's children have a 50% chance of having mutations in both CF genes and developing clinical cystic fibrosis. CF testing of both partners is ideal if the couple is considering sperm retrieval and ICSI. Diagnostic testicular biopsy is not necessary since CBAVD is associated with obstructive azoospermia. Scrotal exploration will not find the vas deferens. CBAVD patients should have normal karyotypes and will not have AZF deletions of the Y-chromosome. Scrotal ultrasound will not add any useful information. While donor insemination is an option, it is not the next step if the couple is considering all options.

Question 149 of 150
A 20 year-old man with stage 1 NSGCT (80% yolk sac, 20% seminoma) without lymphovascular invasion opts for surveillance but is concerned about radiation doses he will receive with CT scans. A reasonable treatment schedule for his CT surveillance would be:

A: chest and abdominal/pelvic CT scans at 3, 6, 9, 12, and 24 months.

B: abdominal/pelvic CT scans at 3, 12, and 24 months.

C: chest and abdominal CT scans at 3 and 24 months.

D: abdominal CT scan at 12 months.

E: chest and abdominal CT scans at 3 and 12 months.

E: "chest and abdominal CT scans at 3 and 12 months." was the correct answer.

A recent randomized, controlled trial evaluating patients with clinical stage 1 NSGCT concludes that "CT scans at 3 and 12 months after orchidectomy should be considered a reasonable option in low risk patients." This schedule was compared with CT scans at 3, 6, 9, 12, and 24 months. This less intensive CT scanning regimen is recommended for low-risk patients such as this patient. This patient does not have any high risk features (significant embryonal cell CA component and/or lymphovascular invasion). An alternative strategy to reduce radiation is to use abdominal MRI scan, although this has not been systematically studied.

Rustin GJ, Mead GM, Stenning SP, et al: Randomized trial of two or five computed tomography scans in the surveillance with stage I NSGCT. J CLIN ONCOL 2007;25:1310-1315.

Question 150 of 150
An eight-year-old boy undergoes PCNL. An intraoperative nephrostogram shows contrast in the large bowel. The best management is ureteral stent and:

A: diverting colostomy.

B: primary colonic repair.

C: remove nephrostomy and low residue diet.

D: retain nephrostomy and perform barium enema.

E: withdraw nephrostomy into colon.

E: "withdraw nephrostomy into colon." is correct.

The child has suffered a colonic perforation. Although rare, this complication due to a retrorenal colon is more common in patients with neurogenic bowel. The majority of these injuries can be managed nonoperatively with a double-J stent, tube drainage of the colon, low residue diet and broad-spectrum antibiotics. The tube is left in the colon for seven to ten days. If a contrast study at that time shows no evidence of extravasation or fistula formation, the tube can be removed. Open exploration is reserved for patients with intraperitoneal perforation, peritonitis, or sepsis.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1548.

Assimos DG: Complications of stone removal, in Smith AD, Badlani GH, Bagley DH, et al (eds): Smith's Textbook of Endourology. St. Louis, Quality Medical Publishing Inc, 1996, vol 1, chap 21, pp 302-303.

You must answer all questions, we will now take you to your first unanswered question.